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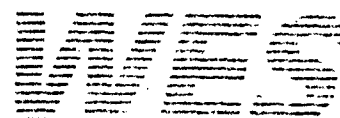
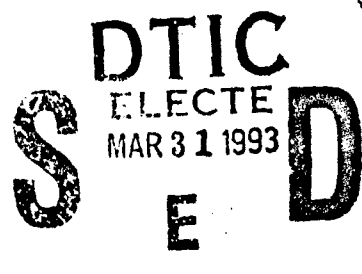
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**Index and Bulk Parameters
For Frequency-Direction
Spectra Measured at CERC
Field Research Facility,
September 1988
To August 1989**

by Charles E. Long, Wendy L. Smith
Coastal Engineering Research Center



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Index and Bulk Parameters For Frequency-Direction Spectra Measured at CERC Field Research Facility, September 1988 To August 1989

by Charles E. Long, Wendy L. Smith
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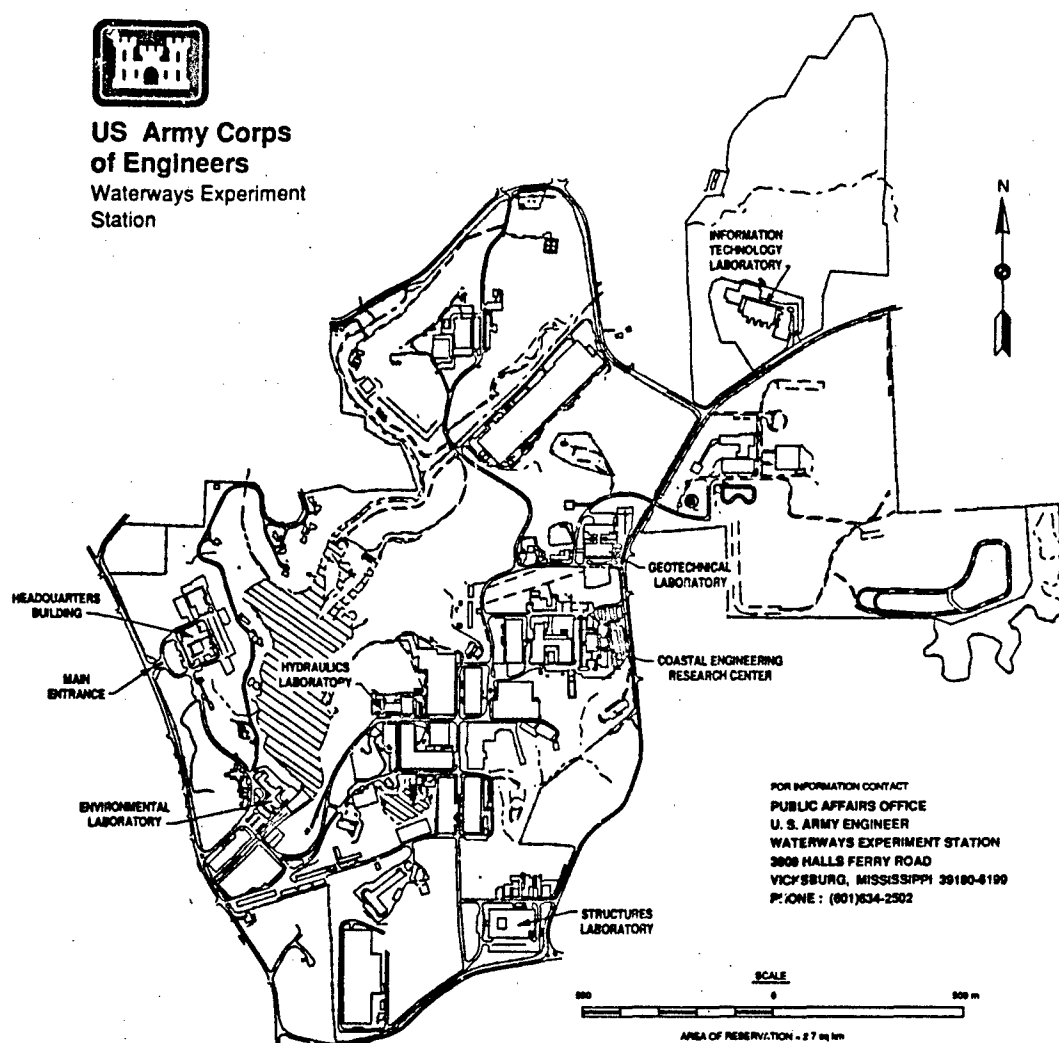
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Preface

This report indexes and describes means of access to a series of wind-wave frequency-direction spectral observations made with a special, high-resolution directional wave gage. The work was motivated by a paucity of observations of directionally distributed wave energy, which has hindered understanding and modeling of the nearshore processes that affect coastal engineering projects. This effort was authorized by Headquarters, US Army Corps of Engineers (HQUSACE), under Civil Works Coastal Flooding Program Research Work Unit 32484, "Directionality of Waves in Shallow Water." Funds were provided through the Coastal Engineering Research Center (CERC), US Army Engineer Waterways Experiment Station (WES), under the program management of Dr. C. Linwood Vincent and Mr. Charles C. Calhoun, Jr. (formerly) and Ms. Carolyn M. Holmes (currently), CERC. Messrs. John H. Lockhart, Jr., John G. Housley, Robert H. Campbell, and James E. Crews were HQUSACE Technical Monitors.

This summary report was prepared by Dr. Charles E. Long from data processed and archived by Ms. Wendy L. Smith, a student contracted through the Cooperative Education Program at Old Dominion University, at CERC's Field Research Facility (FRF) in Duck, NC. Work was performed under the direct supervision of Mr. William A. Birkemeier, Chief, FRF, and Mr. Thomas W. Richardson, Chief, Engineering Development Division, CERC; and under the general supervision of Dr. James R. Houston and Mr. Calhoun, Director and Assistant Director, CERC, respectively.

The directional wave gage and its data processing software were designed by Dr. Joan M. Oltman-Shay while at Oregon State University working through an Intergovernmental Personnel Agreement. This work would not be possible without continued physical maintenance of the directional wave gage. This was done by the FRF dive team consisting of Messrs. Birkemeier, Michael W. Leffler, H. Carl Miller, Eugene W. Bichner, and Brian L. Scarborough. Gage calibration was maintained by Mr. Kent K. Hathaway of the FRF. Acquisition, monitoring, and storage of raw data were done by Mr. Clifford F. Baron of the FRF. This document was edited by Ms. Janean Shirley, Information Technology Laboratory, WES.

At the time of publication of this report, Director of WES was
Dr. Robert W. Whalin. Commander was COL Leonard G. Hassell, EN.

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INDEX AND BULK PARAMETERS FOR FREQUENCY-DIRECTION SPECTRA
MEASURED AT CERC FIELD RESEARCH FACILITY.
SEPTEMBER 1988 TO AUGUST 1989

Introduction

1. The range and magnitude of forces due to ocean waves in the so-called wind-wave frequency band (roughly 0.04 to 0.3 Hz) are of importance to an engineer estimating the durability of a natural boundary or designing a modification to such a boundary. Such waves are among the dominant forcing mechanisms in all coastal processes. Estimation of wave forces requires knowledge of the sea state in the region of interest. Description of a sea state requires, at a minimum, an amplitude, a frequency, and a direction for each component of the wave field. Historically, there have been many observations of wave amplitude and frequency but very few detailed observations of wave direction, due primarily to additional technical requirements in making such measurements. This represents a distinct and very important void in the knowledge required for comprehensive engineering design.

2. In September 1986, to begin to alleviate this dearth of knowledge, the Field Research Facility (FRF) of the Coastal Engineering Research Center, US Army Engineer Waterways Experiment Station, installed a high-resolution, directional wave gage consisting of a linear array of pressure gages for long-term observations of nearshore directional wave climate at its site near Duck, NC (Figure 1). Data thus obtained, which take the form of wave frequency-direction spectra, are intended for use by the broadest possible group of researchers and application engineers, and have been archived in a simple form of database. This report is intended to simplify dissemination of these data by indexing and describing means of access to the set of observations collected during the third year of deployment.

3. The beginning text of this document is intended to describe and clarify the substantial information contained in the appendixes. Brief overviews are given of the measurement site, instrumentation, data collection, and method of directional spectral estimation. These subjects are described in greater detail in other publications, to which the reader is referred. Following the overviews is a description of the archived frequency-direction

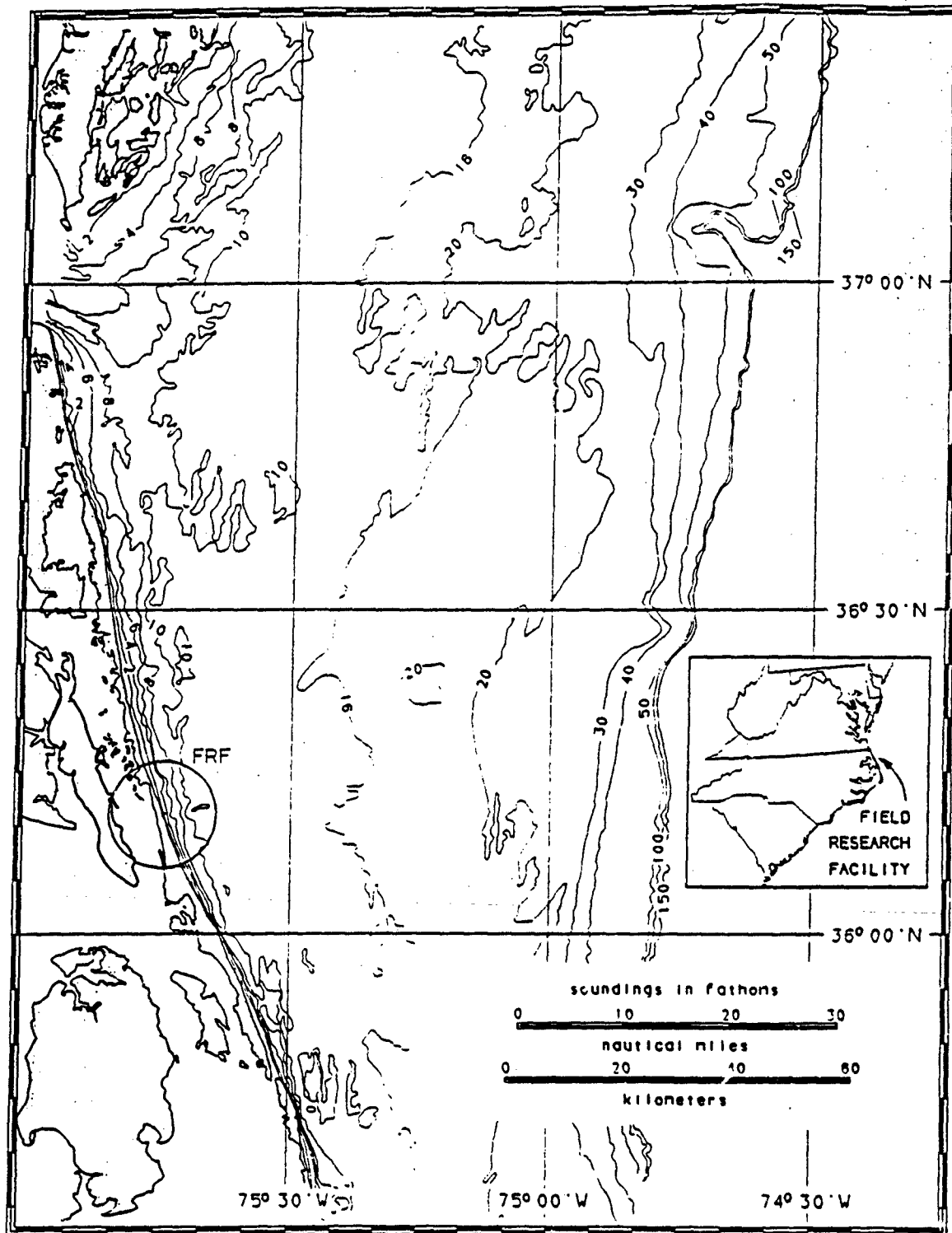


Figure 1. Location and offshore bathymetry of the FRF

spectra and some characterizing bulk parameters that can be derived from them. Appendix A is a listing of these characterizing parameters and is intended to be used as a kind of catalog of the set of spectra. Appendix B contains graphs of time series of some of these parameters as a pictorial augmentation of the information in Appendix A. Appendix C illustrates a FORTRAN computer program that can be used to read archived data, of which a sample listing is given in Appendix D.

Field Research Facility

4. As shown in Figure 1, the FRF is located on the barrier island chain of coastal North Carolina. A detailed description of the layout, function, and capabilities of the FRF is given by Birkemeier et al. (1985). Of particular relevance to directional wave studies are the wave-steering bathymetry and wave-generating winds.

Bathymetry

5. As regards bathymetry, the coastline in the vicinity of the FRF is nearly straight for several tens of kilometers north and south (Figure 1). It is oriented such that a shore-normal line (directed seaward) is very nearly 70 deg from true north. Waves and onshore winds can approach this site along an easterly 180-deg arc from 340 to 160 deg true. The adjacent continental shelf is wide, relatively shallow, and of somewhat complex bathymetry. The direction of nearest approach of the 100-m isobath, which indicates the shelf break, is 10 to 15 deg south of east and is about 80 km distant. A typical bottom slope for the shelf is 1 m/km, but this is interrupted by numerous features of 1- to 10-km horizontal scales and 10-m vertical scales scattered irregularly across the shelf.

6. Within a few kilometers of the FRF, the offshore bathymetry is more regular, with isobaths nearly shore-parallel and a bottom slope of about 2 m/km (Figure 2). Some irregularities exist. Within about 300 m of the shore, there exists a complex and mobile bar system (Birkemeier 1984). Waves and currents have created some irregular bathymetry in the vicinity of the FRF research pier, which extends about 600 m offshore (Miller, Birkemeier, and DeWall 1983).

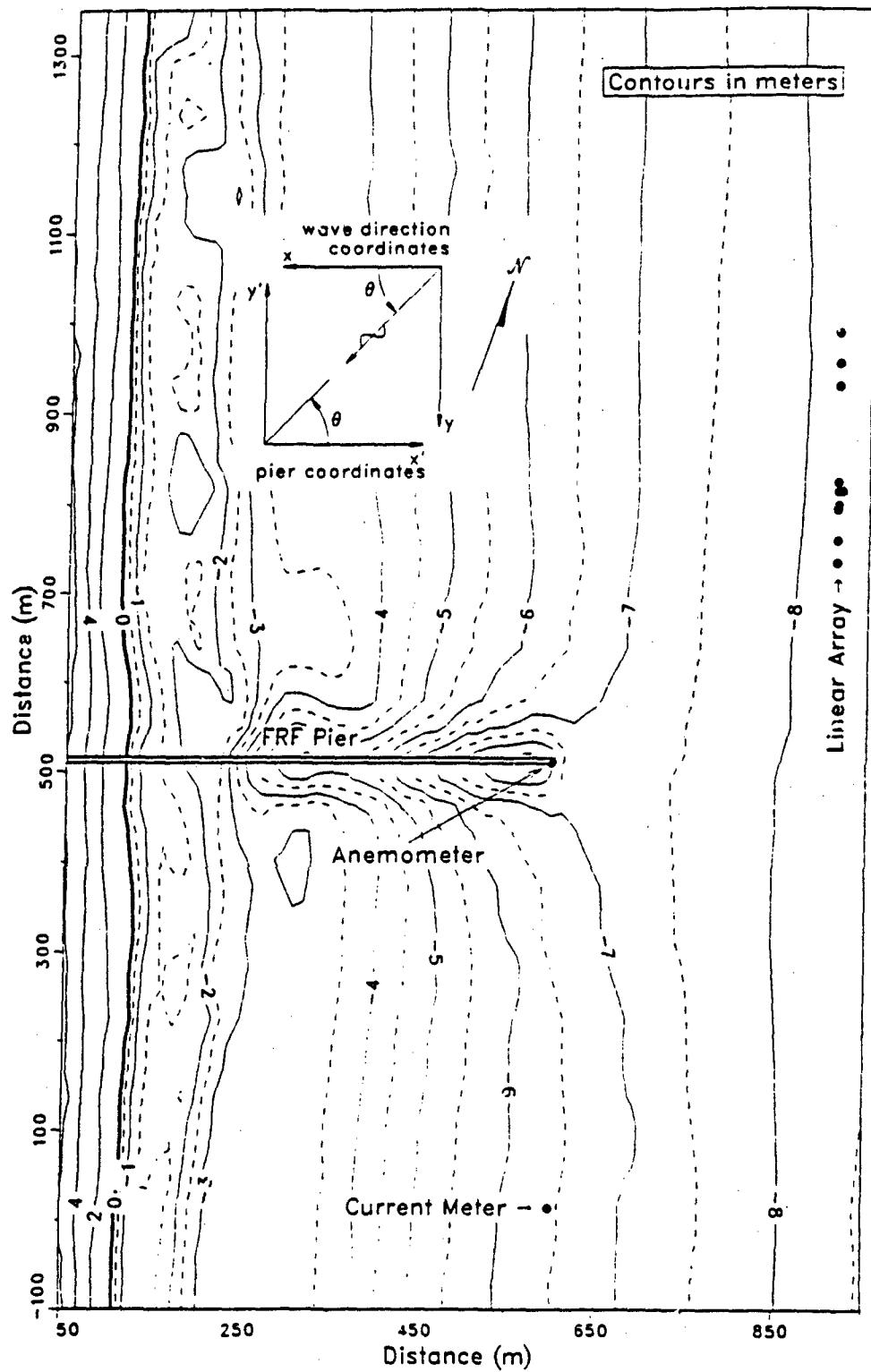


Figure 2. FRF nearshore bathymetry and coordinate system

Wave-generating winds

7. The site is subject to a variety of climates, which gives rise to a diverse set of directional wave conditions. Primary sources of high-energy waves are winds associated with hurricanes and frontal passages. Though several hurricanes have passed over or near the FRF since its founding in 1979, none did so in the period covered by this report. Low-pressure weather fronts, of which several crossed the FRF site during this reporting year, were typically oriented northeast-southwest, with strong wave-generating winds coming from the northeast. Detailed, quantitative descriptions of the climate at the FRF, as determined from its arsenal of instrumentation, during the period covered by this report are given by Leffler et al. (1990, 1991).

Instrumentation

8. The primary instrument in this study is a high-resolution directional wave gage. It consists of two parts. The first is a linear array of sensors that sample sea-surface displacement at several points in (horizontal) space. The second, described in the following section on data processing, is the mathematical treatment of these data to obtain estimates of wave directionality.

9. The FRF array consists of nine pressure gages mounted approximately 0.5 m off the bottom along the 8-m isobath about 900 m offshore and to the north of the research pier (Figure 2). Its location satisfies three constraints. First, it is generally outside the surf zone so that linear wave theory is applicable in data processing. Second, it is in water shallow enough that signals from 3-sec waves, the shortest periods of interest here, are detectable above background noise at the bottom-mounted gages. Third, it is located away from the irregular isobaths around the pier and in the nearshore bar system, which helps minimize bathymetrically induced inhomogeneities in the wave field.

10. Spacing between the gages along the linear array appears irregular in Figure 2 but, for the most part, corresponds to the array-design criterion posed by Davis and Regier (1977) that every gage pair have a unique separation. Figure 3 is an enlarged view of the array layout and shows gage spacing as well as the gage numbering scheme. Gage 10 is not used in linear array

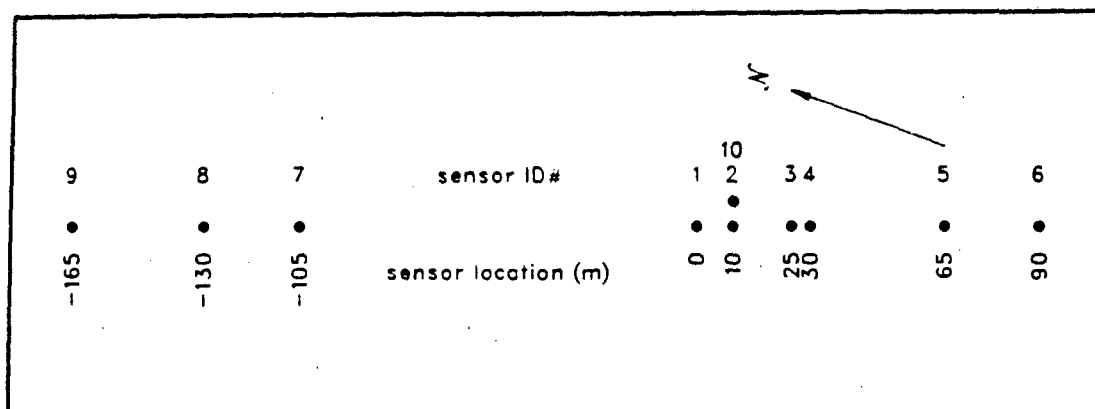


Figure 3. Spacing and numbering of linear array gages

analysis but is used in error checking. Minimum gage spacing is 5 m, maximum spacing (the length of the array) is 255 m, and intermediate gage spacings are in multiples of 5 m. With nine gages, there are 36 possible unique spacings. In the FRF array, eight redundant spacings are intentionally left for ancillary examination of spatial homogeneity of the wave field. Twenty-eight unique spacings remain.

11. Each pressure gage is a Senso-Metric Model SP973(C), in which a piezo-electric strain gage detects displacement of a pressure-sensitive diaphragm referenced to an evacuated cavity. Site calibrations indicate an accuracy of the pressure equivalent of ± 0.006 m of water for wave-induced fluctuations about a static water column height of 8 m. Voltage analogs of pressure signals are hard-wired through a 10-Hz, fourth-order, Butterworth filter (primarily to eliminate 60-Hz noise) to an analog-to-digital signal converter and then to a Digital Equipment Corporation VAX 11/750 computer for data acquisition. Discretization of the full-scale signal to 11-bit binary form results in a digitization step of the equivalent of 0.007 m of water, which is nearly the same as gage accuracy.

Data Collection

12. Signals from each of the nine pressure gages were sampled at 2 Hz and stored digitally as records of 4,096 points (34 min 8 sec). A normal collection consisted of four such records or 16,384 points (2 hr 16 min

32 sec) for each gage. Hence, a total of 147,456 data points were collected to produce one frequency-direction spectrum. Starting times for normal collections are the same as those for routine FRF observations (Birkemeier et al. 1985), which occur daily at 0100, 0700, 1300, and 1900 hr Eastern Standard Time (EST). At times of high energy or when specifically requested by an investigator, additional daily collections occur at 0400, 1000, 1600, and 2200 hr EST.

13. During the period covered by this report, a total of 1,444 frequency-direction spectra were obtained. A list of data collection start times for these observations is given in Appendix A. Appendix B contains time-series plots of spectral parameters with winds and currents as auxiliary environmental variables.

Data Processing

14. Conversion of measured time series to estimates of frequency-direction spectra requires products of frequency spectral estimates from the nine gages in the array. For final results to be accurate, raw input data must be of exceptionally high quality so that spiky or drifty data from one gage do not contaminate products of results from the other eight gages. Hence, the procedure for data processing is to check raw data for errors, estimate a frequency-direction spectrum, and then compute some bulk parameters with which to characterize results.

Error checking

15. Because multiple gages were deployed in what was assumed to be a uniform sea, certain statistical properties of raw data from the nine gages should be identical. Hence, properties of data from these gages can be intercompared to isolate bad gages. Two types of properties were used: integral, requiring summing of data, and extremal, derived from maximal and minimal characteristics of a time series. Integral properties used were mean value, standard deviation, skewness, (excess) kurtosis, and trend. Extremal properties were maximum and minimum values, first derivatives, and second derivatives of pressure time series. Reference values were then established for each property. Except for skewness and kurtosis, which have expected values of zero, reference values were the medians of each property determined

from the nine gages of the linear array plus the tenth gage shown in Figure 3. If a property of any gage deviated from the reference value by more than a preset, empirically determined amount, it was flagged as being suspect, and the data were then further examined by hand to ensure that the flagging procedure had indeed identified a malfunctioning gage. A more detailed description of the error-checking procedure is given by Long and Oltman-Shay (1991).

16. If a gage malfunctioned, it was not used in further analysis. The analysis programs were written so that data from a subset of gages could be analyzed. Using fewer gages results in reduced directional resolution, with some gages being more critical than others. If either of the two gages with the smallest spacing is lost, results are invalid at high frequencies due to aliasing. In these cases, directional analysis was truncated at a lower high-frequency limit (generally 0.24 Hz instead of the normal 0.32 Hz). If either of these two were not lost, a full analysis was done. For the data set described here, there were never fewer than six functioning gages in the linear array.

17. To keep track of the set of functioning gages, a parameter called the gage pattern was created and stored with the results for each collection. The gage pattern is a nine-place character string that represents the linear array gages in order of placement. Each place in the string contains the gage number if the gage was functioning properly or a minus sign (-) if the gage was not used in analysis. This parameter can be of use in later analysis for assessing the directional resolving ability of a reduced array.

Frequency-direction spectra

18. Estimation of the frequency-direction spectrum is done in four parts. First, time series of pressure data from each gage are Fourier transformed to the frequency domain. Second, these transforms are converted to sea-surface displacement transforms. Third, cross spectra of sea-surface displacement are computed between all unique gage pairs for each frequency. Finally, an estimate is made of a directional distribution of wave energy that corresponds to the computed spatial variation in cross-spectral density for each frequency.

19. The Fourier transform is conventional. A 16,384-point time series is divided into 15 half-overlapping segments of 2,048 points. Segments are tapered with a Kaiser-Bessel window (a modified Bessel function of the first

kind, compensated uniformly for loss of variance due to windowing) and fast Fourier transformed. An intermediate-resolution transform is found by averaging the 15 transformed segments, frequency by frequency. Final transforms are found by then averaging results over 10 adjacent frequency bands. Final resolution bandwidth is 0.00976 Hz, and degrees of freedom are at least 150 (assuming eight contiguous segments and ignoring any gain from lapped segments). Transform estimates are retained for 28 frequency bands with band-center frequency ranging from 0.054 to 0.318 Hz.

20. Conversion of pressure signals at depth to water-surface displacement is done through the linear wave theory pressure response factor as described in the Shore Protection Manual (1984). After this conversion, complex cross spectra in the form of coincident and quadrature spectra are computed in the conventional way (Bendat and Piersol 1971; Jenkins and Watts 1968) between all unique gage pairs. Cross-spectral estimates at a given frequency are then ordered in terms of gage separation distance, or lag space, in preparation for directional spectral estimation at that frequency.

21. Conversion of cross-spectral patterns in lag space to directional spectra is done with the Iterative Maximum Likelihood Estimation algorithm derived and described by Pawka (1972, 1983). The algorithm is also described in application to data from heave-pitch-roll buoys by Oltman-Shay and Guza (1984). Accuracy of directional estimates depends on frequency, with high-frequency waves (short wavelengths) being better resolved by an array of finite length. Tests with artificial data indicate that the FRF array generally can resolve the direction of a unidirectional wave train to within 5 deg and can distinguish two wave trains at the same frequency if their directions differ by at least 15 deg.

22. The algorithm used here yields discrete direction "bandwidths" or arcs of about 0.5 deg for 0.318-Hz waves to about 3.5 deg for 0.054-Hz waves. It is convenient to have direction increments the same for all frequencies so that a regular array can be used to represent the full frequency-direction spectrum. As a trade-off between the two discrete arc-width extremes, directional results were integrated over 2-deg arcs and renormalized with this arc width to create evenly spaced directional spectra at all frequencies. By nature, linear array results have a 180-deg ambiguity in directional detection. It is assumed here that most wind-wave energy propagates onshore and that an insignificant amount of energy propagates offshore. Directions of

interest are then in the 180-deg arc representing seaward approach directions. Dividing this range into 2-deg arcs results in 91 arc center directions with which to characterize discretely the directional distribution of wave energy at a given frequency.

23. The primary result of data processing is an estimate of the discrete frequency-direction spectrum $S(f_n, \theta_m)$, which represents the variance of sea-surface displacement per frequency resolution bandwidth df ($= 0.00976$ Hz) per direction resolution arc $d\theta$ ($= 2$ deg), where f_n is the n^{th} of $N = 28$ discrete frequencies and θ_m is the m^{th} of $M = 91$ discrete directions.* In this work, direction is considered to be the angle from which wave energy is coming, measured counterclockwise from shore normal (Figure 3).

24. Numerical values of $S(f_n, \theta_m)$ can range over many orders of magnitude, depending on the amount of energy in a given frequency band and direction arc, and this can require space-consuming formats for archiving data. To simplify this problem, frequency-direction spectra can be saved in the form of directional distribution functions $D(f_n, \theta_m)$ defined by

$$D(f_n, \theta_m) = \frac{S(f_n, \theta_m)}{S(f_n)} \quad (1)$$

where $S(f_n)$ is the frequency spectral density at frequency f_n . The directional distribution function has units of deg^{-1} , and its integral with respect to direction over all directions is unity.

25. The frequency spectrum in Equation 1 represents the sum over all directions of sea-surface variance per frequency bandwidth and is defined in terms of the frequency-direction spectrum by

$$S(f_n) = \sum_{m=1}^M S(f_n, \theta_m) d\theta \quad (2)$$

where the variables on the right hand-side are defined in paragraph 23. Note

* For convenience, symbols and abbreviations are listed in the Notation (Appendix E).

that this is identical to a conventional frequency spectrum that would result from a time series of sea-surface displacements at a single point in space. Because it is an integral of the frequency-direction spectrum, it is called the integrated frequency spectrum.

26. A directional analog of the frequency spectrum is the integrated direction spectrum, found by summing the frequency-direction spectrum over all frequencies for a fixed-direction arc. Using terms defined in paragraph 23, it is computed from

$$S(\theta_m) = \sum_{n=1}^N S(f_n, \theta_m) df \quad (3)$$

Figure 4 shows one way to display the frequency-direction spectrum and the corresponding integrated frequency and integrated direction spectra.

Bulk parameters

27. Several parameters have been computed to characterize the observed spectra. There are four basic types of parameters: (a) characteristic wave height, (b) peak frequency (or its inverse, peak period), (c) peak direction, and (d) directional spread. There is more than one way to define some of these parameters, so several alternate forms are presented here.

28. Characteristic wave height. Characteristic wave heights from spectral observations are most frequently given as H_{mo} , which is four times the standard deviation of sea-surface displacement. It can be determined from the volume under the frequency-direction spectrum by the equation

$$H_{mo}^2 = 16 \sum_{n=1}^N \sum_{m=1}^M S(f_n, \theta_m) df d\theta \quad (4)$$

It can also be found from the integrated frequency spectrum by

$$H_{mo}^2 = 16 \sum_{n=1}^N S(f_n) df \quad (5)$$

which is its more conventional definition, or from the integrated direction

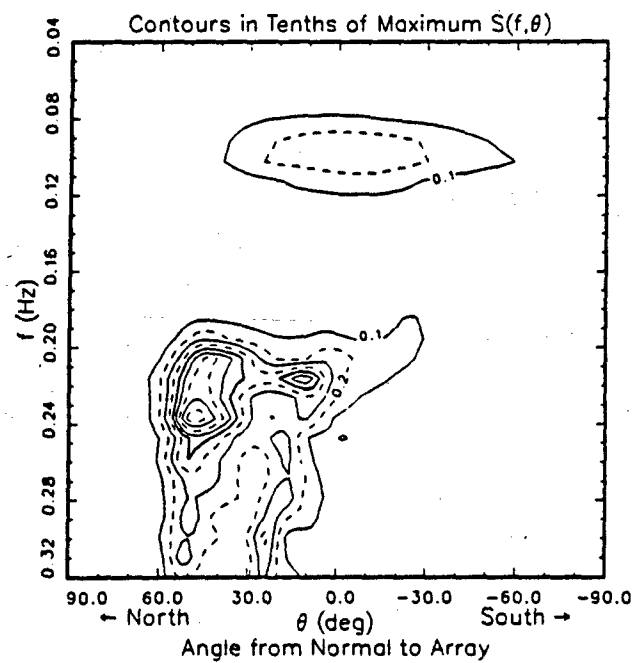
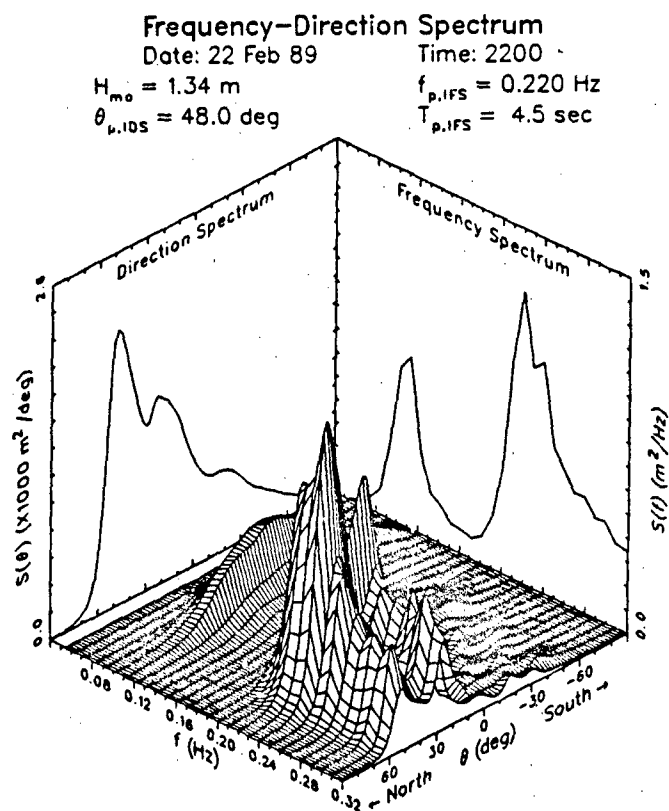


Figure 4. Sample frequency-direction spectrum

spectrum by

$$H_{\text{mo}}^2 = 16 \sum_{m=1}^M S(\theta_m) d\theta \quad (6)$$

29. Peak frequency. Peak frequency, which has the generic notation f_p , can be defined in at least two ways. One way is to find the frequency (and direction) at which the frequency-direction spectrum is maximum. This peak frequency is denoted $f_{p,FD}$. Another way is to find the frequency at which the integrated frequency spectrum is maximum. This is the more conventional definition, because of the plethora of measured frequency spectra, and it is denoted $f_{p,IFS}$. The two peak frequencies may not be the same. If the directional distribution is broad at the frequency for which the integrated frequency spectrum is maximum, it is possible that another frequency, at which the frequency-direction spectrum has a narrow directional distribution, will denote the maximum of the frequency-direction spectrum.

30. Peak period. Peak period is the characteristic wave period associated with spectral peak frequency. Denoted generically by T_p , it is related to peak frequency by $T_p = 1/f_p$. Peak period from the frequency-direction spectrum is given by $T_{p,FD} = 1/f_{p,FD}$. Conventional peak period, derived from the integrated frequency spectrum, is given by $T_{p,IFS} = 1/f_{p,IFS}$.

31. Peak direction. Peak direction is the direction representing the most energy. Given the generic symbol θ_p , it, too, can be defined in several ways. One peak direction can be defined from the maximum of the frequency-direction spectrum. It is denoted by $\theta_{p,FD}$. Another peak direction can be associated with the maximum of the integrated direction spectrum, defined above. This peak direction is denoted $\theta_{p,IDS}$. It can differ from $\theta_{p,FD}$ if energy in the frequency-direction spectrum is centered at different directions for different frequencies. This condition tends to smear energy along the direction axis in the integrated direction spectrum, thereby shifting the peak relative to the peak of the frequency-direction spectrum. A third measure of peak direction is a weighted average peak direction defined by

$$\theta_{p,SW} = \frac{1}{\left(\frac{1}{4}H_{m0}\right)^2} \sum_{n=1}^N S(f_n) \theta_{p,n} \quad (7)$$

where $\theta_{p,n}$ is peak direction of the directional distribution at the n^{th} frequency of the frequency-direction spectrum, $S(f_n)$ is the integrated frequency spectrum from Equation 2, and H_{m0} is defined by Equation 4. This definition gives higher weights to the more energetic peak directions but does not rely on the single distribution with the most energy.

32. Directional spread. A fourth type of characteristic parameter is directional spread. This parameter, denoted generically as $\Delta\theta$, gives a measure of the range of directions from which some significant fraction of energy is propagating. The basic definition used here is the arc subtended by the middle two quartiles of a directional distribution. As illustrated in Figure 5, the directional distribution function $D(f_n, \theta_m)$ for a particular frequency f_n can be integrated from one bounding direction (here the shore-parallel direction at +90 deg) to some arbitrary direction θ_j to make a kind of cumulative distribution function $I(f_n, \theta_j)$. The formal definition is

$$I(f_n, \theta_j) = \sum_{m=1}^j D(f_n, \theta_m) d\theta \quad (8)$$

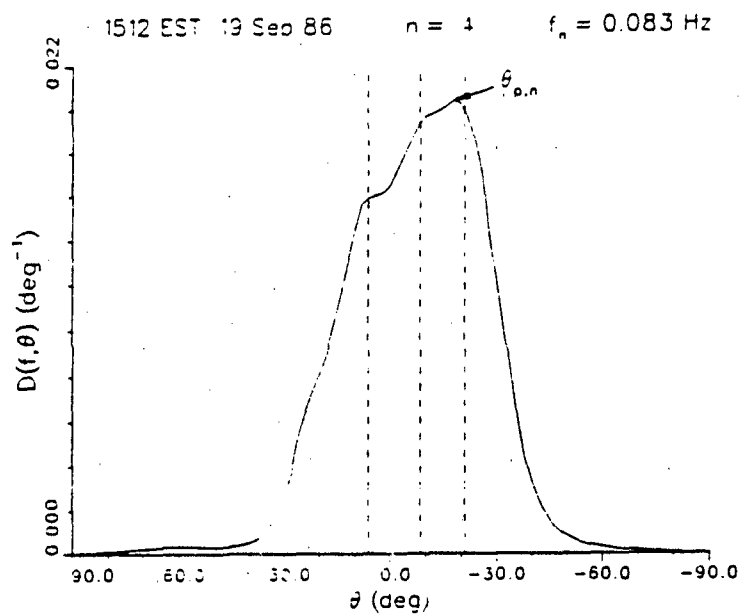
where j is the index of a discrete angle bin. The three quartile directions, called $\theta_{25\%}, \theta_{50\%}$ and $\theta_{75\%}$, respectively, satisfy the equations

$$I(f_n, \theta_{25\%,n}) = 0.25 \quad (9)$$

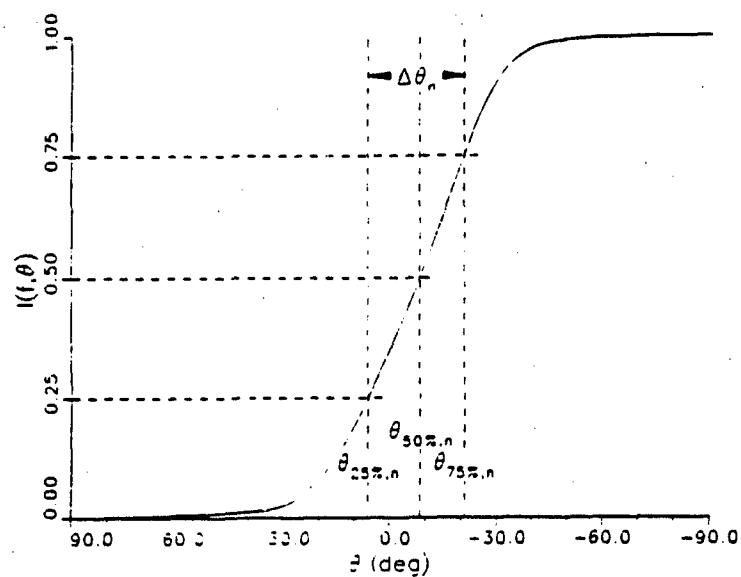
$$I(f_n, \theta_{50\%,n}) = 0.50 \quad (10)$$

$$I(f_n, \theta_{75\%,n}) = 0.75 \quad (11)$$

A directional spread parameter for the n^{th} frequency is defined by the expression



a. Directional distribution



b. Cumulative distribution

Figure 5. Directional spread computation

$$\Delta\theta_n = \theta_{25\text{Hz},n} - \theta_{75\text{Hz},n} \quad (12)$$

33. If Equation 12 is applied at the frequency where the frequency-direction spectrum is maximum, a measure of directional spread at the peak of the frequency-direction spectrum is obtained. This parameter is denoted $\Delta\theta_{\text{DP}}$. If, instead of a directional distribution function at a single frequency, the normalized integrated direction spectrum is used in the set of Equations 8 to 12, a measure of bulk directional spread is obtained. This parameter is given the symbol $\Delta\theta_{\text{DS}}$. A third measure of directional spread is found from a spectrally weighted average of the spreads at each frequency. Denoted as $\Delta\theta_{\text{SW}}$, this parameter is found from

$$\Delta\theta_{\text{SW}} = \frac{1}{\left(\frac{1}{4}H_{\text{ao}}\right)^2} \sum_{n=1}^N S(f_n) \Delta\theta_n \quad (13)$$

Equation 13 is like Equation 7 for the spectrally weighted peak direction.

34. Together, these 11 parameters give a bulk characterization of some properties of a frequency-direction spectrum. There are, of course, many other parameters that can be defined, but the present set is simple and is rather easier to use than the 2,548 discrete spectral densities (28 frequencies times 91 directions) required for a full description of any given spectrum discussed here.

Archived Results

35. A magnetic tape containing the set of observed frequency-direction spectra from the first year of collection has been prepared for copying and distribution (upon request). Appendix A contains a listing of the date, starting time, and the characterizing parameters defined previously for each case. It is intended to be used as a kind of index or catalog of the set of available cases. For reasons explained below, dates are given in the form yymmdd where yy is a two-digit year indicator (e.g., 88 means 1988), mm is the numeric index of the calendar month (i.e., 01 is January, 12 is

December, etc.), and dd is day of the month. All times are Eastern Standard Time. A 24-hr clock is used.

36. Graphic representations of data collection times, some bulk parameters, and some auxiliary environmental variables are contained in Appendix B. One graph is shown for each month of the collection year. The upper part of each graph has time series plots of the bulk parameters H_{ms} , $T_{p,1rs}$, $\theta_{p,1rs}$, and $\Delta\theta_{1rs}$. The lower part of each graph has stick figure plots of three environmental variables. First is a kind of crude wave vector in which the stick vector has a length proportional to H_{ms} and a direction given by $\theta_{p,1rs} + 180 \text{ deg}$. The 180 deg is added to provide a physical frame of reference consistent with a vector pointing in the direction of energy propagation. The assumption that all waves propagate onshore means that all stick vectors in this part of the graph will have a component directed upward on the page.

37. The second stick figure plot is the wind vector as measured with the FRF environmental anemometer. Mounted at the seaward end of the FRF pier (Figure 2) at an elevation of 19.5 m above mean sea level, this instrument gives a reasonable estimate of the wind climate in the vicinity of the linear array. The third stick figure plot is the current vector as measured with a current meter located offshore about even with the end of the pier and alongshore about 500 m south of the pier (Figure 2). This instrument was approximately 1.5 m off the bottom in water about 6 m deep and, therefore, sensed currents near the bottom. All available current data are plotted. Two large storms in February and March 1989 caused damage to the current meter that was not repaired until September 1989, so that data are not available for the last few months covered by this report. Of the existing data, the reader may note a significant anticorrelation between cross-shore winds and cross-shore currents. This is consistent with the behavior of wall-bounded, shallow-water, wind-generated currents. Additional details about the anemometer and current meter are given by Birkemeier et al. (1985).

Retrieving Processed Data

38. The magnetic medium containing directional-spectral data is 9-track, ASCII-formatted tape written at 6,250 bytes/in. with a 2,048-byte

blocksize. This is a rather standard set of tape format parameters, which should make copies fairly transportable. It may be possible to write the data in other formats, and specific requests can be coordinated with the FRF.

39. The tape archive contains 1,444 files, one for each observed frequency-direction spectrum. Each file has a length of about 30,000 bytes, so the complete archive contains roughly 43.3 megabytes of information. The user may wish to consider whether this quantity of information will take too much system space before trying to copy the whole archive. Subsets of data can be created by reading the tape archive one file at a time. Each file has the generic name FDyymmddhhmm.DAT, where FD stands for frequency-direction spectrum, the character grouping yymmdd represents the data collection date (as listed in Appendix A), and the character grouping hhmm represents the data collection start time (also from Appendix A).

40. Once a file is on equipment and in a position to be read, it can be input to a computer program through any ASCII-formatted read statement. Appendix C contains a listing of a FORTRAN program that can read the data files. The variables contained in a data file are listed in the header of the program in Appendix C. A listing of a sample data file is given in Appendix D. The read statements in the program in Appendix C can be visually aligned with the data fields of the listing in Appendix D if the user wishes to edit or visually read a data file. Program variable names, especially those that have parallel symbols in this text, are also listed in the Notation (Appendix E).

41. It is intended that the magnetic tape archive will be maintained for its approximate life of 3 years from the publication date of this report. By that time the data will have been archived in more permanent, and likely different, form. Until then, a user can obtain data by directing a request to:

Chief, Field Research Facility
1261 Duck Road
Kitty Hawk, NC 27949-4472
Phone: (919) 261-3511
Fax: (919) 261-4432

Summary of Results

42. Data from the third collection year of high-resolution, directional-spectral observations at the FRF have been put in a form that is highly accessible to researchers interested in nearshore processes. Directional gain, directional analysis algorithms, and definitions of characterizing parameters are described in the body of this report, as are the location and form of archived data. Both a listing and a graphic presentation of data collection times and characteristic parameters are given in the appendixes. The appendixes also contain a sample data file and a listing of a FORTRAN program that can be used to read a data file.

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Appendix A: Table of Collection Times and Bulk Parameters

Bulk Parameters of Observed Frequency-Direction Spectra*

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 880914 | 1900 | 0.75 | 0.181 | 0.191 | 5.52 | 5.24 | 20.0 | 20.0 | 8.8 | 46.5 | 33.6 | 20.2 |
| 880915 | 0100 | 0.63 | 0.083 | 0.113 | 11.98 | 8.87 | -10.0 | 18.0 | 6.2 | 48.7 | 33.5 | 21.9 |
| 880915 | 0700 | 0.69 | 0.083 | 0.083 | 11.98 | 11.98 | -14.0 | 22.0 | 8.9 | 47.6 | 32.8 | 29.2 |
| 880915 | 1300 | 0.99 | 0.220 | 0.210 | 4.54 | 4.75 | 16.0 | 14.0 | 18.9 | 37.1 | 32.5 | 27.0 |
| 880915 | 1900 | 1.07 | 0.181 | 0.162 | 5.52 | 6.19 | 10.0 | 10.0 | 13.7 | 38.0 | 35.1 | 28.4 |
| 880916 | 0100 | 0.95 | 0.152 | 0.152 | 6.58 | 6.58 | 24.0 | 12.0 | 19.5 | 41.8 | 38.3 | 30.3 |
| 880916 | 0700 | 0.92 | 0.171 | 0.171 | 5.83 | 5.83 | 28.0 | 14.0 | 23.4 | 39.9 | 37.0 | 29.3 |
| 880916 | 1300 | 0.78 | 0.162 | 0.162 | 6.19 | 6.19 | 20.0 | 24.0 | 17.8 | 41.9 | 39.6 | 39.0 |
| 880916 | 1900 | 0.74 | 0.201 | 0.181 | 4.98 | 5.52 | 28.0 | -8.0 | 11.9 | 41.4 | 40.4 | 49.4 |
| 880917 | 0100 | 0.69 | 0.171 | 0.171 | 5.83 | 5.83 | 24.0 | -6.0 | 16.3 | 44.2 | 43.2 | 38.7 |
| 880917 | 0700 | 0.71 | 0.181 | 0.181 | 5.52 | 5.52 | 26.0 | 0.0 | -0.1 | 41.9 | 42.0 | 40.4 |
| 880917 | 1300 | 0.61 | 0.162 | 0.152 | 6.19 | 6.58 | 20.0 | -8.0 | 7.0 | 42.2 | 43.5 | 37.5 |
| 880917 | 1900 | 0.56 | 0.132 | 0.142 | 7.56 | 7.04 | 10.0 | -10.0 | -3.3 | 41.2 | 40.9 | 30.8 |
| 880918 | 0100 | 0.53 | 0.142 | 0.142 | 7.04 | 7.04 | -4.0 | -12.0 | -11.6 | 41.4 | 41.9 | 30.0 |
| 880918 | 0700 | 0.48 | 0.162 | 0.152 | 6.19 | 6.58 | -12.0 | -16.0 | -23.0 | 38.6 | 37.2 | 29.2 |
| 880918 | 1300 | 0.53 | 0.191 | 0.191 | 5.24 | 5.24 | -28.0 | -26.0 | -30.1 | 38.4 | 35.3 | 30.0 |
| 880921 | 1300 | 0.52 | 0.142 | 0.142 | 7.04 | 7.04 | -20.0 | -22.0 | -20.1 | 33.1 | 32.5 | 27.8 |
| 880921 | 1900 | 0.39 | 0.142 | 0.142 | 7.04 | 7.04 | -20.0 | -22.0 | -20.5 | 35.6 | 35.5 | 32.9 |
| 880922 | 0100 | 0.54 | 0.298 | 0.289 | 3.35 | 3.47 | 56.0 | 56.0 | 22.8 | 66.4 | 35.5 | 27.9 |
| 880922 | 0700 | 0.70 | 0.240 | 0.240 | 4.17 | 4.17 | 48.0 | 50.0 | 34.2 | 43.8 | 27.8 | 21.8 |
| 880922 | 1300 | 0.85 | 0.181 | 0.191 | 5.52 | 5.24 | 14.0 | 12.0 | 10.4 | 34.1 | 33.0 | 23.0 |
| 880922 | 1900 | 0.53 | 0.181 | 0.191 | 5.52 | 5.24 | 34.0 | 38.0 | 23.3 | 52.5 | 34.9 | 25.1 |
| 880923 | 0100 | 0.50 | 0.162 | 0.171 | 6.19 | 5.83 | 22.0 | 28.0 | 15.6 | 48.4 | 40.5 | 39.1 |
| 880923 | 0700 | 0.35 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -14.0 | 3.0 | 43.9 | 41.2 | 35.5 |
| 880923 | 1300 | 0.33 | 0.113 | 0.113 | 8.87 | 8.87 | -14.0 | -12.0 | -13.7 | 36.1 | 36.8 | 33.5 |
| 880923 | 1900 | 0.30 | 0.113 | 0.103 | 8.87 | 9.71 | -16.0 | -64.0 | -37.5 | 48.1 | 39.0 | 31.6 |
| 880924 | 0100 | 0.27 | 0.113 | 0.113 | 8.87 | 8.87 | -18.0 | -20.0 | -21.9 | 37.1 | 36.6 | 32.1 |
| 880924 | 0700 | 0.26 | 0.103 | 0.103 | 9.71 | 9.71 | -10.0 | -14.0 | -20.6 | 42.0 | 42.0 | 29.0 |
| 880924 | 1300 | 0.95 | 0.210 | 0.201 | 4.75 | 4.98 | 44.0 | 42.0 | 32.4 | 35.6 | 35.4 | 24.2 |
| 880924 | 1900 | 0.91 | 0.162 | 0.162 | 6.19 | 6.19 | 18.0 | 28.0 | 29.0 | 36.8 | 36.7 | 26.1 |
| 880925 | 0100 | 0.80 | 0.162 | 0.162 | 6.19 | 6.19 | 10.0 | 6.0 | 11.6 | 34.6 | 34.2 | 25.6 |
| 880925 | 0700 | 1.02 | 0.162 | 0.152 | 6.19 | 6.58 | 14.0 | 38.0 | 29.8 | 32.7 | 30.2 | 25.5 |
| 880925 | 1300 | 1.27 | 0.152 | 0.152 | 6.58 | 6.58 | 0.0 | 6.0 | 9.6 | 32.1 | 31.3 | 31.6 |
| 880925 | 1900 | 1.13 | 0.132 | 0.132 | 7.56 | 7.56 | 0.0 | 22.0 | 14.0 | 36.3 | 35.4 | 33.5 |
| 880926 | 0100 | 1.18 | 0.142 | 0.142 | 7.04 | 7.04 | 8.0 | 10.0 | 14.9 | 32.1 | 30.0 | 29.2 |
| 880926 | 0700 | 1.33 | 0.171 | 0.181 | 5.83 | 5.52 | 10.0 | 16.0 | 14.3 | 32.6 | 31.2 | 22.2 |
| 880926 | 1300 | 1.34 | 0.162 | 0.162 | 6.19 | 6.19 | 4.0 | 8.0 | 13.1 | 32.8 | 30.5 | 27.1 |
| 880926 | 1900 | 1.29 | 0.162 | 0.162 | 6.19 | 6.19 | 2.0 | 12.0 | 10.0 | 33.7 | 32.5 | 27.7 |
| 880927 | 0100 | 1.24 | 0.162 | 0.162 | 6.19 | 6.19 | 0.0 | 2.0 | 1.7 | 34.6 | 31.9 | 29.8 |
| 880927 | 0700 | 1.34 | 0.074 | 0.074 | 13.57 | 13.57 | -20.0 | 4.0 | -2.3 | 38.0 | 34.0 | 34.8 |
| 880927 | 1300 | 1.34 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -8.0 | -5.8 | 34.3 | 34.0 | 31.8 |
| 880927 | 1900 | 1.27 | 0.074 | 0.074 | 13.57 | 13.57 | -24.0 | -18.0 | -13.1 | 36.3 | 36.3 | 37.1 |
| 880928 | 0100 | 1.21 | 0.074 | 0.074 | 13.57 | 13.57 | -8.0 | -16.0 | -9.1 | 33.8 | 33.9 | 34.2 |
| 880928 | 0700 | 1.21 | 0.074 | 0.074 | 13.57 | 13.57 | -22.0 | -18.0 | -11.3 | 37.2 | 36.9 | 40.5 |
| 880928 | 1300 | 1.20 | 0.064 | 0.074 | 15.62 | 13.57 | -4.0 | -20.0 | -12.0 | 33.0 | 32.9 | 29.7 |
| 880928 | 1900 | 1.14 | 0.074 | 0.064 | 13.57 | 15.62 | -12.0 | -20.0 | -17.2 | 36.1 | 35.5 | 33.4 |
| 880929 | 0100 | 0.99 | 0.083 | 0.083 | 11.98 | 11.98 | -24.0 | -20.0 | -13.4 | 33.3 | 33.1 | 28.9 |
| 880929 | 0700 | 1.18 | 0.074 | 0.074 | 13.57 | 13.57 | -16.0 | -16.0 | -5.2 | 43.0 | 37.3 | 38.1 |

(Continued)

*See Notation (Appendix E) for definitions of terms.

(Sheet 1 of 30)

(Continued)

| Date | Time | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IFS} deg | θ _{p,SW} deg | Δθ _{IFS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 880929 | 1300 | 1.13 | 0.074 | 0.074 | 13.57 | 13.37 | -6.0 | 0.0 | -1.7 | 38.5 | 36.7 | 39.4 |
| 880929 | 1900 | 1.68 | 0.142 | 0.132 | 7.04 | 7.56 | 24.0 | -4.0 | 0.2 | 40.7 | 39.7 | 36.8 |
| 880930 | 0100 | 1.68 | 0.201 | 0.123 | 4.98 | 8.16 | 30.0 | -4.0 | 5.0 | 39.5 | 38.3 | 42.5 |
| 880930 | 0700 | 1.55 | 0.123 | 0.123 | 8.16 | 8.16 | -8.0 | -6.0 | 3.7 | 41.0 | 40.8 | 41.1 |
| 880930 | 1300 | 1.16 | 0.123 | 0.123 | 8.16 | 8.16 | -8.0 | -12.0 | -5.6 | 40.0 | 39.6 | 38.9 |
| 880930 | 1900 | 1.04 | 0.123 | 0.123 | 8.16 | 8.16 | -8.0 | -10.0 | -6.1 | 38.2 | 37.8 | 37.6 |
| 881001 | 0100 | 0.95 | 0.123 | 0.113 | 8.16 | 8.87 | 4.0 | -6.0 | -4.2 | 37.8 | 38.0 | 35.7 |
| 881001 | 0700 | 0.83 | 0.093 | 0.093 | 10.72 | 10.72 | -2.0 | -16.0 | -10.9 | 36.5 | 36.3 | 37.6 |
| 881001 | 1300 | 0.74 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -12.0 | -11.2 | 36.5 | 37.1 | 36.0 |
| 881001 | 1900 | 0.68 | 0.083 | 0.093 | 11.98 | 10.72 | -16.0 | -14.0 | -12.3 | 36.7 | 35.9 | 31.7 |
| 881002 | 0100 | 0.66 | 0.093 | 0.093 | 10.72 | 10.72 | 12.0 | -22.0 | -12.2 | 40.8 | 38.4 | 37.4 |
| 881002 | 0700 | 0.70 | 0.103 | 0.103 | 9.71 | 9.71 | -8.0 | -20.0 | -15.6 | 39.5 | 36.1 | 38.1 |
| 881002 | 1300 | 0.72 | 0.308 | 0.103 | 3.25 | 9.71 | -56.0 | -56.0 | -27.3 | 43.6 | 32.2 | 15.4 |
| 881002 | 1900 | 0.71 | 0.113 | 0.113 | 8.87 | 8.87 | -16.0 | -18.0 | -18.9 | 36.4 | 31.2 | 35.6 |
| 881003 | 0100 | 0.71 | 0.113 | 0.113 | 8.87 | 8.87 | -14.0 | -16.0 | -20.4 | 38.1 | 35.4 | 40.5 |
| 881003 | 0700 | 0.76 | 0.113 | 0.113 | 8.87 | 8.87 | -10.0 | -16.0 | -18.7 | 33.8 | 32.9 | 33.9 |
| 881003 | 1000 | 0.79 | 0.113 | 0.113 | 8.87 | 8.87 | -9.0 | -12.0 | -17.9 | 35.6 | 33.6 | 36.1 |
| 881003 | 1300 | 0.77 | 0.113 | 0.113 | 8.87 | 8.87 | -18.0 | -28.0 | -20.6 | 36.4 | 35.0 | 39.9 |
| 881003 | 1600 | 0.75 | 0.113 | 0.113 | 8.87 | 8.87 | -16.0 | -20.0 | -17.7 | 39.2 | 37.0 | 33.1 |
| 881003 | 1900 | 1.17 | 0.210 | 0.210 | 4.75 | 4.75 | 42.0 | 44.0 | 21.9 | 60.3 | 39.7 | 40.8 |
| 881003 | 2200 | 1.39 | 0.162 | 0.171 | 6.19 | 5.83 | 34.0 | 40.0 | 27.5 | 54.9 | 45.6 | 49.5 |
| 881011 | 1900 | 0.36 | 0.250 | 0.318 | 4.01 | 3.15 | -62.0 | -62.0 | -41.8 | 51.2 | 37.4 | 32.9 |
| 881012 | 0100 | 0.63 | 0.240 | 0.269 | 4.17 | 3.72 | 58.0 | 58.0 | 44.4 | 41.8 | 32.3 | 20.5 |
| 881012 | 0700 | 1.12 | 0.210 | 0.210 | 4.75 | 4.75 | 38.0 | 52.0 | 42.9 | 36.0 | 34.0 | 27.0 |
| 881012 | 1300 | 1.08 | 0.181 | 0.181 | 5.52 | 5.52 | 14.0 | 12.0 | 22.1 | 36.0 | 32.8 | 27.2 |
| 881012 | 1900 | 1.07 | 0.201 | 0.201 | 4.98 | 4.98 | 12.0 | 22.0 | 31.9 | 34.9 | 32.4 | 32.2 |
| 881013 | 0100 | 1.18 | 0.181 | 0.171 | 5.52 | 5.83 | 20.0 | 24.0 | 32.1 | 32.2 | 28.3 | 22.9 |
| 881013 | 0700 | 1.19 | 0.162 | 0.162 | 6.19 | 6.19 | 10.0 | 52.0 | 28.0 | 35.2 | 30.8 | 29.4 |
| 881013 | 1300 | 1.00 | 0.171 | 0.171 | 5.83 | 5.83 | 18.0 | 26.0 | 28.0 | 30.2 | 26.1 | 21.1 |
| 881013 | 1900 | 0.99 | 0.162 | 0.152 | 6.19 | 6.58 | 14.0 | 34.0 | 28.3 | 30.3 | 27.9 | 24.3 |
| 881014 | 0100 | 0.84 | 0.171 | 0.152 | 5.83 | 6.58 | 26.0 | 28.0 | 23.0 | 30.7 | 27.1 | 23.6 |
| 881014 | 0700 | 0.72 | 0.171 | 0.171 | 5.83 | 5.83 | 18.0 | 24.0 | 23.0 | 33.7 | 28.0 | 20.4 |
| 881014 | 1900 | 0.53 | 0.181 | 0.162 | 5.52 | 6.19 | 28.0 | 8.0 | 18.4 | 37.5 | 35.1 | 23.9 |
| 881015 | 0100 | 0.34 | 0.181 | 0.181 | 5.52 | 5.52 | 28.0 | -10.0 | 4.4 | 37.8 | 34.1 | 28.7 |
| 881015 | 0700 | 0.30 | 0.142 | 0.113 | 7.04 | 8.87 | -4.0 | -10.0 | -17.0 | 36.8 | 37.0 | 24.3 |
| 881015 | 1300 | 0.27 | 0.103 | 0.113 | 9.71 | 8.87 | -6.0 | -12.0 | -12.1 | 34.0 | 34.3 | 29.7 |
| 881015 | 1900 | 0.30 | 0.308 | 0.113 | 3.25 | 8.87 | -48.0 | -48.0 | -23.7 | 37.4 | 29.9 | 25.5 |
| 881016 | 0100 | 0.28 | 0.113 | 0.113 | 8.87 | 8.87 | -16.0 | -16.0 | -16.5 | 32.1 | 32.5 | 29.1 |
| 881016 | 0700 | 0.33 | 0.123 | 0.123 | 8.16 | 8.16 | -16.0 | -20.0 | -18.6 | 30.8 | 31.3 | 30.2 |
| 881016 | 1300 | 0.32 | 0.083 | 0.113 | 11.98 | 8.87 | -32.0 | -18.0 | -19.9 | 30.9 | 32.0 | 24.3 |
| 881016 | 1900 | 0.37 | 0.093 | 0.093 | 10.72 | 10.72 | -20.0 | -16.0 | -20.7 | 31.2 | 32.1 | 27.9 |
| 881017 | 0100 | 0.42 | 0.093 | 0.093 | 10.72 | 10.72 | -18.0 | -22.0 | -27.2 | 36.1 | 35.9 | 36.4 |
| 881017 | 0700 | 0.56 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -22.0 | -24.8 | 36.1 | 34.9 | 37.3 |
| 881017 | 1300 | 0.68 | 0.103 | 0.103 | 9.71 | 9.71 | -16.0 | -20.0 | -23.1 | 36.7 | 35.2 | 37.1 |
| 881017 | 1900 | 0.75 | 0.113 | 0.113 | 8.87 | 8.87 | -14.0 | -20.0 | -18.5 | 31.7 | 31.7 | 31.0 |
| 881018 | 0100 | 0.85 | 0.113 | 0.113 | 8.87 | 8.87 | -12.0 | -20.0 | -16.7 | 34.5 | 34.0 | 35.3 |
| 881018 | 0700 | 0.90 | 0.103 | 0.103 | 9.71 | 9.71 | -6.0 | -22.0 | -16.3 | 34.5 | 34.4 | 38.4 |
| 881018 | 1300 | 0.83 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -16.0 | -12.3 | 38.7 | 38.0 | 39.3 |
| 881018 | 1900 | 0.85 | 0.093 | 0.093 | 10.72 | 10.72 | -4.0 | -14.0 | -11.8 | 38.6 | 36.5 | 40.8 |

(Continued)

(Sheet 2 of 30)

(Continued)

| Date | Time | R ₉₀ m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 881019 | 0100 | 1.06 | 0.093 | 0.093 | 10.72 | 10.72 | -6.0 | -10.0 | -5.7 | 39.7 | 39.8 | 42.0 |
| 881019 | 0700 | 1.87 | 0.201 | 0.191 | 4.98 | 5.24 | 32.0 | 10.0 | 14.7 | 38.7 | 34.0 | 30.3 |
| 881019 | 1300 | 1.42 | 0.083 | 0.083 | 11.98 | 11.98 | -2.0 | 6.0 | 11.7 | 44.4 | 40.1 | 44.2 |
| 881019 | 1900 | 1.26 | 0.083 | 0.083 | 11.98 | 11.98 | 4.0 | 10.0 | 5.2 | 42.0 | 37.1 | 38.8 |
| 881020 | 0100 | 1.28 | 0.083 | 0.083 | 11.98 | 11.98 | -8.0 | 12.0 | 9.7 | 42.0 | 36.8 | 42.7 |
| 881020 | 0700 | 1.20 | 0.083 | 0.083 | 11.98 | 11.98 | -8.0 | 0.0 | 4.9 | 37.6 | 34.8 | 41.4 |
| 881020 | 1300 | 1.16 | 0.083 | 0.083 | 11.98 | 11.98 | -10.0 | 6.0 | -0.6 | 39.6 | 37.6 | 41.2 |
| 881020 | 1900 | 0.95 | 0.083 | 0.083 | 11.98 | 11.98 | -6.0 | 0.0 | 5.1 | 38.4 | 36.0 | 34.9 |
| 881021 | 0100 | 1.04 | 0.083 | 0.083 | 11.98 | 11.98 | 2.0 | 0.0 | 2.0 | 39.6 | 38.7 | 39.5 |
| 881021 | 1300 | 1.10 | 0.171 | 0.083 | 5.83 | 11.98 | -6.0 | -4.0 | -2.3 | 37.0 | 34.9 | 31.5 |
| 881021 | 1900 | 1.18 | 0.162 | 0.142 | 6.19 | 7.04 | -20.0 | -22.0 | -20.4 | 41.7 | 36.9 | 42.1 |
| 881022 | 0100 | 0.98 | 0.123 | 0.123 | 8.16 | 8.16 | -14.0 | -10.0 | -3.9 | 41.3 | 41.8 | 41.0 |
| 881022 | 0700 | 0.83 | 0.103 | 0.103 | 9.71 | 9.71 | 4.0 | 0.0 | -0.2 | 40.8 | 41.0 | 38.4 |
| 881022 | 1300 | 0.80 | 0.103 | 0.103 | 9.71 | 9.71 | -10.0 | 12.0 | 4.8 | 39.6 | 40.0 | 41.5 |
| 881022 | 1900 | 0.74 | 0.074 | 0.074 | 13.57 | 13.57 | 8.0 | 6.0 | 2.0 | 39.4 | 39.5 | 37.9 |
| 881023 | 0100 | 0.68 | 0.083 | 0.083 | 11.98 | 11.98 | 4.0 | 0.0 | 16.6 | 48.0 | 36.1 | 33.9 |
| 881023 | 0700 | 0.55 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -8.0 | 9.9 | 47.5 | 38.4 | 34.9 |
| 881023 | 1300 | 0.47 | 0.093 | 0.093 | 10.72 | 10.72 | -2.0 | -2.0 | -2.7 | 35.8 | 37.4 | 36.2 |
| 881023 | 1900 | 0.50 | 0.083 | 0.083 | 11.98 | 11.98 | -10.0 | -8.0 | -8.0 | 35.6 | 36.7 | 35.7 |
| 881024 | 0100 | 0.51 | 0.074 | 0.093 | 13.57 | 10.72 | 0.0 | -2.0 | -7.3 | 34.6 | 33.6 | 29.6 |
| 881024 | 0700 | 0.48 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -8.0 | -14.5 | 39.9 | 34.4 | 33.0 |
| 881024 | 1300 | 0.45 | 0.074 | 0.074 | 13.57 | 13.57 | 2.0 | -2.0 | -12.1 | 36.2 | 32.2 | 29.6 |
| 881024 | 1900 | 0.52 | 0.083 | 0.083 | 11.98 | 11.98 | -10.0 | -14.0 | -25.9 | 47.3 | 33.5 | 30.6 |
| 881025 | 0100 | 0.44 | 0.083 | 0.083 | 11.98 | 11.98 | -6.0 | -12.0 | -5.6 | 41.0 | 39.3 | 32.7 |
| 881025 | 0700 | 0.59 | 0.054 | 0.083 | 18.45 | 11.98 | -8.0 | 48.0 | 18.6 | 59.4 | 34.3 | 23.8 |
| 881025 | 1300 | 0.56 | 0.064 | 0.064 | 15.62 | 15.62 | 0.0 | 40.0 | 10.5 | 47.3 | 32.8 | 32.0 |
| 881025 | 1900 | 0.56 | 0.064 | 0.064 | 15.62 | 15.62 | -4.0 | -4.0 | -2.3 | 38.7 | 39.7 | 33.7 |
| 881026 | 0100 | 0.50 | 0.064 | 0.064 | 15.62 | 15.62 | -16.0 | -16.0 | -19.8 | 38.8 | 33.3 | 34.3 |
| 881026 | 0700 | 0.49 | 0.074 | 0.074 | 13.57 | 13.57 | 18.0 | -10.0 | -3.1 | 37.6 | 37.3 | 37.7 |
| 881026 | 1300 | 0.48 | 0.074 | 0.074 | 13.57 | 13.57 | -14.0 | -14.0 | -16.3 | 31.4 | 32.1 | 25.5 |
| 881026 | 1900 | 0.49 | 0.074 | 0.074 | 13.57 | 13.57 | -16.0 | 14.0 | -13.7 | 33.4 | 34.4 | 30.7 |
| 881027 | 0100 | 0.44 | 0.074 | 0.074 | 13.57 | 13.57 | -8.0 | -8.0 | -7.0 | 30.1 | 30.4 | 26.9 |
| 881027 | 0700 | 0.51 | 0.083 | 0.083 | 11.98 | 11.98 | -6.0 | -8.0 | -2.0 | 40.0 | 36.6 | 34.3 |
| 881027 | 1300 | 0.71 | 0.220 | 0.083 | 4.54 | 11.98 | 40.0 | 42.0 | 20.6 | 46.6 | 28.8 | 18.7 |
| 881027 | 1900 | 0.60 | 0.083 | 0.083 | 11.98 | 11.98 | -14.0 | 18.0 | 8.7 | 44.3 | 35.9 | 30.4 |
| 881028 | 0100 | 0.58 | 0.083 | 0.083 | 11.98 | 11.98 | -6.0 | 2.0 | -1.1 | 40.7 | 34.6 | 27.6 |
| 881028 | 0700 | 0.52 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -8.0 | -1.1 | 35.8 | 36.6 | 29.4 |
| 881028 | 1900 | 0.54 | 0.093 | 0.093 | 10.72 | 10.72 | -14.0 | -32.0 | -31.6 | 41.4 | 30.9 | 36.9 |
| 881029 | 0100 | 0.62 | 0.289 | 0.298 | 3.47 | 3.35 | 58.0 | 56.0 | 27.0 | 72.1 | 25.0 | 12.5 |
| 881029 | 0700 | 1.49 | 0.171 | 0.171 | 5.83 | 5.83 | 10.0 | 20.0 | 23.6 | 36.0 | 34.3 | 31.5 |
| 881029 | 1300 | 1.17 | 0.162 | 0.152 | 6.19 | 6.58 | 4.0 | 20.0 | 23.9 | 40.9 | 37.9 | 34.3 |
| 881029 | 1900 | 0.82 | 0.181 | 0.181 | 5.52 | 5.52 | 36.0 | 8.0 | 23.1 | 45.7 | 41.9 | 36.6 |
| 881030 | 0100 | 0.75 | 0.171 | 0.164 | 5.83 | 6.19 | 28.0 | 26.0 | 18.6 | 45.9 | 39.2 | 37.0 |
| 881030 | 0700 | 1.09 | 0.230 | 0.210 | 4.35 | 4.75 | 48.0 | 40.0 | 26.2 | 48.2 | 39.0 | 32.5 |
| 881030 | 1300 | 1.04 | 0.191 | 0.201 | 5.24 | 4.98 | 38.0 | 22.0 | 24.9 | 47.7 | 37.4 | 39.2 |
| 881030 | 1900 | 1.07 | 0.210 | 0.201 | 4.75 | 4.98 | 38.0 | 40.0 | 22.4 | 43.7 | 34.0 | 34.0 |
| 881031 | 0100 | 1.22 | 0.191 | 0.191 | 5.24 | 5.24 | 14.0 | 10.0 | 15.2 | 39.3 | 36.1 | 32.2 |
| 881031 | 0700 | 1.18 | 0.162 | 0.181 | 6.19 | 5.52 | 28.0 | -2.0 | 7.7 | 38.9 | 37.9 | 38.3 |
| 881031 | 1300 | 1.04 | 0.171 | 0.181 | 5.83 | 5.52 | -6.0 | -8.0 | 3.2 | 42.0 | 41.0 | 38.7 |

(Continued)

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(Continued)

| Date | Time | H _{ms} | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|---------|------|-----------------|----------------|-------------|-------------|-------------|-----------------|------------------|-----------------|----------------------|---------------------|----------------------|
| | | | $f_{p,FD}$ | $f_{p,IFS}$ | $T_{p,FD}$ | $T_{p,IFS}$ | $\theta_{p,FD}$ | $\theta_{p,IDS}$ | $\theta_{p,SW}$ | $\Delta\theta_{IDS}$ | $\Delta\theta_{SW}$ | $\Delta\theta_{FDP}$ |
| | EST | m | Hz | Hz | sec | sec | deg | deg | deg | deg | deg | deg |
| 8811031 | 1900 | 1.12 | 0.171 | 0.171 | 5.83 | 5.83 | -10.0 | -4.0 | -5.8 | 37.6 | 37.2 | 35.7 |
| 881101 | 0100 | 1.23 | 0.210 | 0.201 | 4.75 | 4.98 | -10.0 | -8.0 | 4.5 | 40.3 | 39.0 | 39.7 |
| 881101 | 0700 | 1.33 | 0.191 | 0.181 | 5.24 | 5.52 | -4.0 | -6.0 | -8.7 | 41.9 | 42.2 | 41.7 |
| 881101 | 1000 | 1.83 | 0.123 | 0.123 | 8.16 | 8.16 | 0.0 | -18.0 | 6.0 | 46.4 | 44.4 | 39.9 |
| 881101 | 1300 | 2.36 | 0.152 | 0.123 | 6.58 | 8.16 | -10.0 | -8.0 | 7.3 | 46.4 | 42.9 | 42.0 |
| 881101 | 1600 | 2.14 | 0.142 | 0.142 | 7.04 | 7.04 | -8.0 | -8.0 | 8.2 | 44.7 | 41.2 | 39.1 |
| 881101 | 1900 | 1.60 | 0.142 | 0.142 | 7.04 | 7.04 | -10.0 | -8.0 | 2.8 | 41.4 | 38.3 | 40.3 |
| 881102 | 0100 | 1.17 | 0.113 | 0.113 | 8.87 | 8.87 | 4.0 | 12.0 | 14.1 | 41.2 | 37.6 | 41.4 |
| 881102 | 0700 | 0.92 | 0.113 | 0.113 | 8.87 | 8.87 | -16.0 | 0.0 | -1.4 | 36.2 | 31.1 | 36.8 |
| 881102 | 1300 | 0.74 | 0.103 | 0.103 | 9.71 | 9.71 | -16.0 | -10.0 | 6.9 | 42.9 | 37.5 | 37.2 |
| 881102 | 1900 | 0.87 | 0.074 | 0.074 | 13.57 | 13.57 | -2.0 | -4.0 | 4.9 | 36.2 | 32.3 | 30.5 |
| 881103 | 0100 | 0.60 | 0.083 | 0.083 | 11.98 | 11.98 | 12.0 | -6.0 | 4.1 | 40.3 | 39.2 | 31.4 |
| 881103 | 0700 | 0.62 | 0.083 | 0.083 | 11.98 | 11.98 | 2.0 | 0.0 | 1.9 | 35.7 | 34.8 | 31.5 |
| 881104 | 0100 | 0.45 | 0.083 | 0.083 | 11.98 | 11.98 | 16.0 | -14.0 | -2.3 | 35.8 | 35.4 | 35.2 |
| 881104 | 0700 | 0.29 | 0.083 | 0.083 | 11.98 | 11.98 | -4.0 | -8.0 | -17.9 | 39.4 | 33.6 | 28.5 |
| 881104 | 1300 | 0.43 | 0.083 | 0.083 | 11.98 | 11.98 | -16.0 | -10.0 | -26.2 | 45.4 | 32.7 | 30.9 |
| 881104 | 1900 | 0.89 | 0.171 | 0.162 | 5.83 | 6.19 | -32.0 | -34.0 | -32.9 | 31.0 | 26.5 | 28.7 |
| 881105 | 0100 | 1.34 | 0.132 | 0.132 | 7.56 | 7.55 | -28.0 | -28.0 | -27.5 | 30.6 | 29.5 | 27.2 |
| 881105 | 0700 | 1.15 | 0.113 | 0.123 | 8.87 | 8.16 | -16.0 | -16.0 | -20.1 | 32.9 | 32.5 | 35.7 |
| 881105 | 1300 | 1.34 | 0.113 | 0.113 | 8.87 | 8.87 | -16.0 | -24.0 | -25.8 | 32.5 | 30.2 | 28.2 |
| 881105 | 1900 | 1.27 | 0.103 | 0.103 | 9.71 | 9.71 | -26.0 | -24.0 | -23.3 | 37.7 | 35.8 | 36.3 |
| 881106 | 0100 | 1.00 | 0.103 | 0.103 | 9.71 | 9.71 | -22.0 | -26.0 | -29.9 | 37.6 | 34.2 | 33.2 |
| 881106 | 0700 | 0.77 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -22.0 | -28.2 | 42.1 | 36.9 | 37.1 |
| 881106 | 1300 | 0.75 | 0.113 | 0.113 | 8.87 | 8.87 | -22.0 | -24.0 | -26.2 | 37.6 | 33.4 | 37.4 |
| 881106 | 1900 | 0.68 | 0.113 | 0.113 | 8.87 | 8.87 | -24.0 | -56.0 | -35.0 | 42.9 | 29.5 | 36.5 |
| 881107 | 0100 | 0.48 | 0.142 | 0.123 | 7.04 | 8.16 | -36.0 | -34.0 | -31.0 | 44.8 | 33.5 | 30.9 |
| 881107 | 0700 | 0.41 | 0.132 | 0.093 | 7.56 | 10.72 | -42.0 | -42.0 | -23.0 | 43.5 | 35.2 | 30.8 |
| 881107 | 1300 | 0.38 | 0.123 | 0.123 | 8.16 | 8.16 | -22.0 | -22.0 | -29.0 | 39.7 | 32.1 | 32.1 |
| 881107 | 1900 | 0.38 | 0.132 | 0.123 | 7.56 | 8.16 | -28.0 | -26.0 | -29.6 | 42.7 | 35.3 | 20.9 |
| 881108 | 0100 | 0.37 | 0.132 | 0.132 | 7.56 | 7.56 | -24.0 | -26.0 | -30.9 | 36.9 | 35.1 | 26.9 |
| 881108 | 0700 | 0.36 | 0.132 | 0.113 | 7.56 | 8.87 | -26.0 | -26.0 | -29.8 | 41.6 | 36.0 | 27.2 |
| 881108 | 1900 | 0.38 | 0.083 | 0.083 | 11.98 | 11.98 | -22.0 | -58.0 | -33.7 | 45.4 | 31.7 | 32.4 |
| 881109 | 0100 | 0.31 | 0.083 | 0.083 | 11.98 | 11.98 | -18.0 | -22.0 | -30.1 | 42.2 | 36.1 | 28.4 |
| 881109 | 0700 | 1.08 | 0.210 | 0.201 | 4.75 | 4.98 | 50.0 | 50.0 | 44.1 | 34.7 | 32.1 | 27.3 |
| 881109 | 1300 | 0.92 | 0.141 | 0.181 | 5.52 | 5.52 | 22.0 | 10.0 | 23.9 | 38.7 | 35.5 | 30.2 |
| 881109 | 1900 | 0.69 | 0.201 | 0.191 | 4.98 | 5.24 | 40.0 | 48.0 | 29.7 | 50.4 | 41.0 | 37.5 |
| 881110 | 0100 | 0.56 | 0.210 | 0.210 | 4.75 | 4.75 | 36.0 | -6.0 | 15.2 | 53.1 | 39.1 | 42.6 |
| 881110 | 1000 | 0.42 | 0.132 | 0.083 | 7.56 | 11.98 | -30.0 | -22.0 | -9.2 | 41.3 | 40.0 | 25.8 |
| 881110 | 1300 | 0.41 | 0.123 | 0.123 | 8.16 | 8.16 | -24.0 | -26.0 | -18.5 | 37.8 | 37.6 | 28.3 |
| 881110 | 1900 | 0.48 | 0.279 | 0.113 | 3.59 | 8.87 | -66.0 | -66.0 | -41.0 | 43.5 | 27.8 | 17.0 |
| 881111 | 0100 | 0.37 | 0.113 | 0.123 | 8.87 | 8.16 | -24.0 | -26.0 | -39.8 | 38.7 | 29.1 | 24.1 |
| 881111 | 0700 | 1.15 | 0.240 | 0.210 | 4.17 | 4.75 | 46.0 | 46.0 | 34.6 | 44.4 | 38.9 | 26.7 |
| 881111 | 1300 | 1.13 | 0.191 | 0.181 | 5.24 | 5.52 | 26.0 | 42.0 | 34.6 | 38.9 | 34.2 | 29.8 |
| 881111 | 1900 | 1.47 | 0.171 | 0.171 | 5.83 | 5.83 | 12.0 | 16.0 | 23.5 | 33.2 | 31.1 | 28.6 |
| 881112 | 0100 | 1.37 | 0.171 | 0.162 | 5.83 | 6.19 | 10.0 | 16.0 | 15.8 | 35.5 | 32.8 | 28.2 |
| 881112 | 0700 | 1.20 | 0.171 | 0.162 | 5.83 | 6.19 | 36.0 | 6.0 | 14.0 | 39.3 | 39.1 | 37.1 |
| 881112 | 1300 | 0.95 | 0.171 | 0.171 | 5.83 | 5.83 | 34.0 | 38.0 | 23.3 | 44.2 | 41.9 | 44.1 |
| 881112 | 1900 | 1.24 | 0.230 | 0.201 | 4.35 | 4.98 | 2.0 | -2.0 | 1.7 | 38.6 | 37.8 | 36.9 |

(Continued)

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(Continued)

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 881113 | 0100 | 1.05 | 0.181 | 0.171 | 5.52 | 5.83 | 0.0 | 0 | -2.4 | 37.6 | 38.1 | 31.0 |
| 881113 | 0700 | 1.28 | 0.162 | 0.152 | 6.19 | 6.58 | -16.0 | -14.0 | -9.0 | 43.6 | 41.4 | 43.6 |
| 881113 | 1300 | 1.14 | 0.142 | 0.142 | 7.04 | 7.04 | -8.0 | -16.0 | -14.1 | 41.1 | 39.8 | 40.3 |
| 881113 | 1600 | 1.08 | 0.142 | 0.142 | 7.04 | 7.04 | -8.0 | -18.0 | -12.7 | 40.8 | 38.3 | 39.9 |
| 881113 | 1900 | 0.96 | 0.152 | 0.152 | 6.58 | 6.58 | -18.0 | -22.0 | -17.3 | 39.4 | 38.5 | 35.4 |
| 881114 | 0100 | 0.74 | 0.142 | 0.142 | 7.04 | 7.04 | -8.0 | -24.0 | -13.3 | 41.4 | 39.7 | 36.4 |
| 881114 | 0700 | 0.72 | 0.142 | 0.142 | 7.04 | 7.04 | -18.0 | -20.0 | -6.5 | 45.4 | 42.2 | 42.8 |
| 881114 | 1300 | 0.80 | 0.132 | 0.132 | 7.56 | 7.56 | 0.0 | -22.0 | -8.2 | 39.2 | 37.4 | 37.0 |
| 881114 | 1900 | 0.97 | 0.142 | 0.142 | 7.04 | 7.04 | -8.0 | -18.0 | -12.2 | 36.4 | 35.7 | 34.6 |
| 881115 | 0100 | 0.82 | 0.132 | 0.132 | 7.56 | 7.56 | -22.0 | -20.0 | -16.2 | 36.4 | 35.0 | 39.3 |
| 881115 | 1300 | 0.62 | 0.142 | 0.142 | 7.04 | 7.04 | -2.0 | -18.0 | -16.7 | 37.8 | 34.9 | 33.5 |
| 881115 | 1900 | 0.70 | 0.132 | 0.123 | 7.56 | 8.16 | -2.0 | -16.0 | -11.6 | 35.2 | 34.9 | 36.6 |
| 881116 | 0100 | 0.70 | 0.123 | 0.123 | 8.16 | 8.16 | 6.0 | -20.0 | -12.9 | 43.5 | 41.7 | 42.8 |
| 881116 | 0700 | 0.72 | 0.210 | 0.210 | 4.75 | 4.75 | -28.0 | -24.0 | -22.0 | 46.0 | 47.5 | 69.6 |
| 881116 | 1300 | 0.72 | 0.201 | 0.201 | 4.98 | 4.98 | -26.0 | -24.0 | -26.1 | 47.0 | 41.1 | 52.9 |
| 881116 | 1600 | 0.69 | 0.201 | 0.171 | 4.98 | 5.83 | -20.0 | -22.0 | -22.7 | 43.4 | 36.4 | 36.4 |
| 881116 | 1900 | 0.67 | 0.181 | 0.191 | 5.52 | 5.24 | -20.0 | -26.0 | -22.0 | 42.0 | 35.1 | 36.6 |
| 881117 | 0100 | 0.72 | 0.181 | 0.181 | 5.52 | 5.52 | -28.0 | -30.0 | -29.3 | 41.9 | 35.6 | 36.5 |
| 881117 | 0700 | 0.70 | 0.152 | 0.152 | 6.58 | 6.58 | -22.0 | -28.0 | -24.2 | 38.4 | 33.8 | 38.2 |
| 881117 | 1000 | 0.70 | 0.162 | 0.162 | 6.19 | 6.19 | -26.0 | -30.0 | -31.0 | 34.8 | 31.6 | 33.0 |
| 881117 | 1300 | 0.94 | 0.220 | 0.220 | 4.54 | 4.54 | 54.0 | 56.0 | 37.0 | 83.1 | 39.6 | 12.8 |
| 881117 | 1900 | 0.83 | 0.181 | 0.181 | 5.52 | 5.52 | 34.0 | 38.0 | 26.8 | 54.3 | 43.6 | 55.3 |
| 881118 | 0100 | 0.79 | 0.181 | 0.171 | 5.52 | 5.83 | 32.0 | 26.0 | 21.8 | 51.9 | 45.3 | 43.4 |
| 881118 | 0700 | 1.49 | 0.181 | 0.171 | 5.52 | 5.83 | 12.0 | 12.0 | 12.8 | 35.7 | 33.7 | 33.4 |
| 881118 | 1900 | 0.80 | 0.171 | 0.171 | 5.83 | 5.83 | -8.0 | 2.0 | 10.8 | 45.4 | 43.0 | 44.1 |
| 881119 | 0100 | 0.75 | 0.210 | 0.132 | 4.75 | 7.56 | 36.0 | 2.0 | 10.3 | 47.8 | 44.7 | 48.5 |
| 881119 | 0700 | 0.83 | 0.250 | 0.250 | 4.01 | 4.01 | 2.0 | 0.0 | -3.1 | 39.0 | 37.0 | 35.3 |
| 881119 | 1300 | 0.91 | 0.210 | 0.210 | 4.75 | 4.75 | -6.0 | -6.0 | -3.3 | 36.5 | 36.5 | 30.2 |
| 881119 | 1900 | 0.68 | 0.230 | 0.220 | 4.35 | 4.54 | -64.0 | 14.0 | -24.6 | 57.4 | 58.4 | 76.7 |
| 881120 | 0100 | 0.83 | 0.191 | 0.191 | 5.24 | 5.24 | -32.0 | -30.0 | -35.1 | 42.9 | 34.3 | 28.2 |
| 881120 | 0700 | 0.80 | 0.171 | 0.162 | 5.83 | 6.19 | -24.0 | -28.0 | -28.2 | 39.6 | 34.9 | 34.1 |
| 881120 | 1300 | 0.89 | 0.142 | 0.142 | 7.04 | 7.04 | -16.0 | -32.0 | -27.4 | 36.7 | 33.5 | 32.3 |
| 881120 | 1900 | 0.84 | 0.132 | 0.142 | 7.56 | 7.04 | -24.0 | -44.0 | -35.4 | 29.0 | 25.0 | 26.6 |
| 881121 | 0100 | 0.57 | 0.132 | 0.132 | 7.56 | 7.56 | -32.0 | -30.0 | -34.2 | 41.1 | 33.5 | 38.1 |
| 881121 | 0700 | 0.63 | 0.240 | 0.240 | 4.17 | 4.17 | 54.0 | 50.0 | 35.0 | 54.8 | 27.1 | 14.6 |
| 881121 | 1300 | 1.29 | 0.191 | 0.191 | 5.24 | 5.24 | 36.0 | 36.0 | 22.4 | 39.7 | 36.1 | 43.2 |
| 881121 | 1900 | 1.71 | 0.162 | 0.152 | 6.19 | 6.58 | 6.0 | 20.0 | 16.8 | 35.6 | 33.2 | 31.9 |
| 881122 | 0100 | 1.18 | 0.171 | 0.162 | 5.83 | 6.19 | 6.0 | 24.0 | 15.7 | 39.4 | 35.3 | 32.2 |
| 881122 | 0700 | 1.21 | 0.181 | 0.162 | 5.52 | 6.19 | 10.0 | 12.0 | 15.6 | 39.0 | 36.5 | 31.1 |
| 881122 | 1300 | 1.05 | 0.152 | 0.142 | 6.58 | 7.04 | -4.0 | 6.0 | 6.1 | 39.6 | 38.8 | 37.3 |
| 881122 | 1900 | 0.96 | 0.142 | 0.142 | 7.04 | 7.04 | -8.0 | -6.0 | 4.2 | 41.8 | 40.9 | 44.2 |
| 881123 | 0100 | 0.86 | 0.201 | 0.230 | 4.98 | 4.35 | -10.0 | -8.0 | 5.7 | 44.2 | 43.3 | 45.3 |
| 881123 | 0700 | 0.93 | 0.220 | 0.239 | 4.54 | 3.86 | 24.0 | 36.0 | 27.0 | 52.2 | 46.6 | 69.3 |
| 881123 | 1300 | 0.94 | 0.220 | 0.220 | 4.54 | 4.54 | 44.0 | 40.0 | 24.4 | 48.6 | 41.9 | 43.6 |
| 881123 | 1600 | 1.31 | 0.210 | 0.201 | 4.75 | 4.98 | 40.0 | 40.0 | 29.6 | 48.4 | 40.6 | 43.2 |
| 881123 | 1900 | 1.61 | 0.181 | 0.191 | 5.52 | 5.24 | 28.0 | 32.0 | 17.8 | 48.1 | 43.9 | 42.5 |
| 881123 | 2200 | 1.67 | 0.162 | 0.171 | 6.19 | 5.83 | -12.0 | 16.0 | 7.4 | 44.7 | 40.3 | 37.9 |
| 881124 | 0100 | 1.99 | 0.171 | 0.162 | 5.83 | 6.19 | 0.0 | 0.0 | 6.0 | 41.8 | 39.4 | 35.3 |
| 881124 | 0400 | 2.16 | 0.162 | 0.162 | 6.19 | 6.19 | -2.0 | 2.0 | 8.2 | 44.1 | 40.8 | 42.4 |
| 881124 | 0700 | 2.26 | 0.152 | 0.152 | 6.58 | 6.58 | -4.0 | 4.0 | 7.8 | 41.3 | 38.6 | 37.5 |

(Continued)

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(Continued)

| Date | Time | H _{ms} | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|-----------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------------------|------------------|
| | | | f _{p,FD} | f _{p,IFS} | T _{p,FD} | T _{p,IFS} | θ _{p,FD} | θ _{p,IFS} | θ _{p,SW} | Δθ _{IFS} | Δθ _{SW} | Δθ _{FD} |
| | EST | m | Hz | Hz | sec | sec | deg | deg | deg | deg | deg | deg |
| 881124 | 1000 | 2.17 | 0.142 | 0.142 | 7.04 | 7.04 | 10.0 | 8.0 | 9.1 | 46.3 | 50.4 | 61.3 |
| 881124 | 1300 | 1.92 | 0.132 | 0.132 | 7.56 | 7.56 | 4.0 | 0.0 | 3.3 | 47.9 | 49.6 | 57.9 |
| 881124 | 1600 | 1.74 | 0.142 | 0.132 | 7.04 | 7.56 | 6.0 | 0.0 | 16.9 | 47.3 | 49.0 | 58.2 |
| 881124 | 1900 | 1.47 | 0.132 | 0.132 | 7.56 | 7.56 | 4.0 | 14.0 | 7.4 | 47.6 | 47.9 | 57.3 |
| 881124 | 2200 | 1.34 | 0.132 | 0.132 | 7.56 | 7.56 | 0.0 | 18.0 | 7.0 | 45.7 | 46.7 | 54.6 |
| 881125 | 0100 | 1.20 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | 2.0 | 8.2 | 44.8 | 45.8 | 47.2 |
| 881125 | 0400 | 1.17 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | 2.0 | 4.0 | 38.3 | 37.5 | 42.7 |
| 881125 | 0700 | 1.13 | 0.132 | 0.103 | 7.56 | 9.71 | -8.0 | 4.0 | 2.0 | 39.6 | 38.9 | 38.4 |
| 881125 | 1000 | 1.17 | 0.113 | 0.103 | 8.87 | 9.71 | 0.0 | 4.0 | 6.5 | 39.4 | 37.9 | 45.4 |
| 881125 | 1300 | 1.13 | 0.142 | 0.142 | 7.04 | 7.04 | 8.0 | 6.0 | 7.0 | 37.4 | 36.5 | 35.6 |
| 881125 | 1600 | 1.03 | 0.132 | 0.132 | 7.56 | 7.56 | 0.0 | 2.0 | 5.0 | 37.5 | 37.2 | 36.4 |
| 881125 | 1900 | 0.93 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | 0.0 | 4.2 | 39.6 | 39.2 | 44.1 |
| 881125 | 2200 | 0.82 | 0.103 | 0.103 | 9.71 | 9.71 | -6.0 | -6.0 | 1.4 | 39.7 | 38.9 | 41.3 |
| 881126 | 0100 | 0.79 | 0.103 | 0.103 | 9.71 | 9.71 | 10.0 | -6.0 | 6.4 | 37.9 | 38.1 | 36.7 |
| 881126 | 0400 | 0.68 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | -6.0 | 0.7 | 39.3 | 39.3 | 42.5 |
| 881126 | 0700 | 0.60 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | -6.0 | 1.0 | 39.5 | 39.2 | 39.0 |
| 881126 | 1000 | 0.53 | 0.113 | 0.113 | 8.87 | 8.87 | 18.0 | -6.0 | 0.7 | 39.4 | 39.0 | 34.7 |
| 881126 | 1300 | 0.50 | 0.123 | 0.113 | 8.16 | 8.87 | 4.0 | 4.0 | -1.8 | 37.8 | 36.5 | 32.8 |
| 881126 | 1900 | 0.44 | 0.123 | 0.123 | 8.16 | 8.16 | -4.0 | -8.0 | -13.4 | 43.6 | 36.1 | 37.1 |
| 881127 | 0100 | 0.34 | 0.103 | 0.093 | 9.71 | 10.72 | -8.0 | -8.0 | -13.0 | 44.5 | 34.0 | 37.2 |
| 881127 | 0700 | 0.44 | 0.318 | 0.064 | 3.15 | 15.62 | -56.0 | -44.0 | -28.4 | 41.6 | 28.9 | 14.4 |
| 881127 | 1300 | 0.51 | 0.289 | 0.064 | 3.47 | 15.62 | -42.0 | -40.0 | -29.0 | 36.9 | 30.2 | 18.0 |
| 881127 | 1900 | 0.56 | 0.142 | 0.142 | 7.04 | 7.04 | -32.0 | -36.0 | -26.9 | 36.9 | 30.2 | 31.3 |
| 881128 | 0100 | 0.70 | 0.298 | 0.132 | 3.35 | 7.56 | -48.0 | -46.0 | -33.5 | 32.5 | 27.4 | 17.0 |
| 881128 | 0700 | 0.78 | 0.142 | 0.132 | 7.04 | 7.56 | -22.0 | -32.0 | -26.7 | 34.0 | 28.9 | 25.4 |
| 881128 | 1300 | 0.57 | 0.113 | 0.123 | 8.87 | 8.16 | -14.0 | -16.0 | -15.4 | 42.9 | 39.8 | 36.6 |
| 881128 | 1900 | 0.78 | 0.171 | 0.171 | 5.83 | 5.83 | 32.0 | 36.0 | 17.6 | 55.3 | 42.3 | 50.0 |
| 881129 | 0100 | 0.74 | 0.312 | 0.083 | 3.15 | 11.98 | 58.0 | 48.0 | 28.7 | 53.7 | 30.4 | 20.2 |
| 881129 | 0700 | 0.75 | 0.250 | 0.103 | 4.01 | 9.71 | 50.0 | 48.0 | 30.8 | 51.4 | 32.7 | 20.6 |
| 881129 | 1300 | 0.73 | 0.220 | 0.181 | 4.54 | 5.52 | 50.0 | 30.0 | 27.0 | 51.0 | 40.0 | 39.3 |
| 881129 | 1900 | 0.59 | 0.201 | 0.201 | 4.98 | 4.98 | 40.0 | 12.0 | 17.4 | 47.8 | 37.1 | 31.2 |
| 881130 | 0100 | 0.46 | 0.074 | 0.074 | 13.57 | 13.57 | -18.0 | -8.0 | -0.7 | 42.3 | 40.4 | 37.0 |
| 881130 | 0700 | 0.46 | 0.074 | 0.074 | 13.57 | 13.57 | -22.0 | -10.0 | -12.9 | 38.3 | 38.7 | 38.1 |
| 881130 | 1300 | 0.38 | 0.074 | 0.074 | 13.57 | 13.57 | -6.0 | -12.0 | -8.6 | 38.1 | 37.3 | 41.7 |
| 881130 | 1900 | 0.35 | 0.074 | 0.074 | 13.57 | 13.57 | -14.0 | -18.0 | -13.5 | 34.2 | 33.6 | 35.4 |
| 881201 | 0100 | 0.30 | 0.074 | 0.074 | 13.57 | 13.57 | -22.0 | -18.0 | -19.1 | 35.9 | 35.5 | 36.2 |
| 881201 | 0700 | 0.49 | 0.269 | 0.259 | 3.72 | 3.86 | 56.0 | 56.0 | 40.1 | 49.8 | 29.4 | 23.8 |
| 881201 | 1300 | 0.52 | 0.240 | 0.240 | 4.17 | 4.17 | 54.0 | 56.0 | 37.9 | 52.0 | 34.9 | 22.2 |
| 881201 | 1900 | 0.52 | 0.210 | 0.210 | 4.75 | 4.75 | 36.0 | 36.0 | 23.6 | 47.5 | 38.0 | 42.1 |
| 881202 | 0100 | 0.41 | 0.220 | 0.083 | 4.54 | 11.98 | 38.0 | 36.0 | 23.9 | 42.7 | 32.5 | 24.6 |
| 881202 | 0700 | 1.31 | 0.171 | 0.171 | 5.83 | 5.83 | 12.0 | 16.0 | 16.8 | 33.5 | 31.2 | 30.7 |
| 881202 | 1300 | 0.98 | 0.171 | 0.171 | 5.83 | 5.83 | 18.0 | 16.0 | 17.1 | 37.7 | 39.1 | 41.6 |
| 881202 | 1900 | 0.60 | 0.162 | 0.162 | 6.19 | 6.19 | 26.0 | 26.0 | 25.0 | 42.5 | 39.2 | 44.6 |
| 881203 | 0100 | 0.23 | 0.201 | 0.083 | 4.98 | 11.98 | 38.0 | 20.0 | 16.0 | 45.4 | 38.4 | 32.1 |
| 881203 | 0700 | 0.17 | 0.083 | 0.083 | 11.98 | 11.98 | -8.0 | -2.0 | 7.4 | 41.2 | 39.5 | 29.3 |
| 881203 | 1300 | 0.16 | 0.083 | 0.083 | 11.98 | 11.98 | -8.0 | -16.0 | -15.8 | 41.0 | 41.7 | 28.1 |
| 881203 | 1900 | 0.17 | 0.318 | 0.064 | 3.15 | 15.62 | -60.0 | -60.0 | -34.6 | 48.8 | 27.5 | 14.4 |
| 881204 | 0100 | 0.17 | 0.269 | 0.064 | 3.72 | 15.62 | -64.0 | -64.0 | -47.6 | 48.5 | 29.6 | 12.6 |
| 881204 | 0700 | 1.04 | 0.181 | 0.181 | 5.52 | 5.52 | 30.0 | 48.0 | 39.6 | 32.7 | 34.7 | 26.1 |
| 881204 | 1000 | 2.24 | 0.142 | 0.142 | 7.04 | 7.04 | 18.0 | 20.0 | 19.1 | 35.3 | 35.1 | 26.0 |
| 881204 | 1300 | 2.04 | 0.142 | 0.142 | 7.04 | 7.04 | 16.0 | 10.0 | 20.4 | 38.6 | 39.3 | 31.0 |

(Continued)

(Sheet 6 of 30)

(Continued)

| Date | Time | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 881204 | 1600 | 1.77 | 0.142 | 0.142 | 7.04 | 7.04 | 8.0 | 14.0 | 14.0 | 36.5 | 34.8 | 32.0 |
| 881204 | 1900 | 1.35 | 0.162 | 0.162 | 6.19 | 6.19 | 4.0 | 6.0 | 6.1 | 35.2 | 35.0 | 33.6 |
| 881204 | 2200 | 1.20 | 0.171 | 0.113 | 5.83 | 8.87 | 8.0 | 8.0 | 11.6 | 35.4 | 35.5 | 29.2 |
| 881205 | 0100 | 0.98 | 0.123 | 0.123 | 8.16 | 8.16 | 10.0 | 8.0 | 7.5 | 37.6 | 37.0 | 39.7 |
| 881205 | 0400 | 0.80 | 0.152 | 0.152 | 6.58 | 6.58 | -4.0 | 12.0 | 13.4 | 38.6 | 36.0 | 35.1 |
| 881205 | 0700 | 0.76 | 0.132 | 0.132 | 7.56 | 7.56 | -4.0 | 12.0 | 13.8 | 38.3 | 34.4 | 37.4 |
| 881205 | 1300 | 0.57 | 0.152 | 0.152 | 6.58 | 6.58 | 2.0 | 4.0 | 6.3 | 38.7 | 37.7 | 38.4 |
| 881205 | 1900 | 0.26 | 0.171 | 0.171 | 5.83 | 5.83 | -14.0 | -10.0 | -0.4 | 38.9 | 41.1 | 39.1 |
| 881206 | 0100 | 0.18 | 0.123 | 0.123 | 8.16 | 8.16 | 4.0 | -16.0 | -15.2 | 37.5 | 38.7 | 33.3 |
| 881206 | 0700 | 0.20 | 0.298 | 0.113 | 3.35 | 8.87 | 48.0 | 62.0 | 20.0 | 66.3 | 33.1 | 14.1 |
| 881206 | 1300 | 0.24 | 0.250 | 0.113 | 4.01 | 8.87 | -72.0 | -10.0 | -19.1 | 48.7 | 38.5 | 25.5 |
| 881206 | 1900 | 0.31 | 0.259 | 0.269 | 3.86 | 3.72 | -48.0 | -52.0 | -40.3 | 42.1 | 25.4 | 20.9 |
| 881207 | 0100 | 0.23 | 0.308 | 0.308 | 3.25 | 3.25 | -62.0 | -62.0 | -43.7 | 42.9 | 22.2 | 10.0 |
| 881207 | 0700 | 0.21 | 0.318 | 0.318 | 3.15 | 3.15 | -62.0 | -60.0 | -48.3 | 38.1 | 20.7 | 13.6 |
| 881207 | 1300 | 0.17 | 0.318 | 0.074 | 3.15 | 13.57 | -58.0 | -58.0 | -40.1 | 42.9 | 26.2 | 51.1 |
| 881207 | 1900 | 0.18 | 0.259 | 0.064 | 3.86 | 15.62 | -66.0 | -64.0 | -44.9 | 49.7 | 35.2 | 21.4 |
| 881208 | 0100 | 0.18 | 0.279 | 0.171 | 3.59 | 5.83 | -64.0 | -64.0 | -46.5 | 45.2 | 26.4 | 13.3 |
| 881208 | 0700 | 0.20 | 0.142 | 0.162 | 7.04 | 6.19 | -40.0 | -60.0 | -41.6 | 48.5 | 42.2 | 29.9 |
| 881208 | 1300 | 0.97 | 0.240 | 0.210 | 4.17 | 4.75 | 20.0 | 22.0 | 19.8 | 31.5 | 29.6 | 28.6 |
| 881208 | 1900 | 0.95 | 0.181 | 0.181 | 5.52 | 5.52 | 0.0 | 16.0 | 8.3 | 37.9 | 34.0 | 32.3 |
| 881209 | 0100 | 0.86 | 0.191 | 0.181 | 5.24 | 5.52 | -2.0 | 2.0 | 4.2 | 37.0 | 35.3 | 31.4 |
| 881209 | 0700 | 0.82 | 0.171 | 0.171 | 5.83 | 5.83 | -12.0 | 0.0 | 8.7 | 43.1 | 40.2 | 36.2 |
| 881209 | 1300 | 1.82 | 0.162 | 0.162 | 6.19 | 6.19 | -4.0 | 6.0 | 6.4 | 34.1 | 32.5 | 33.1 |
| 881209 | 1900 | 1.28 | 0.171 | 0.162 | 5.83 | 6.19 | -4.0 | 8.0 | 6.2 | 35.4 | 32.1 | 34.0 |
| 881210 | 0100 | 0.98 | 0.181 | 0.162 | 5.52 | 6.19 | -2.0 | 6.0 | 4.4 | 33.8 | 30.2 | 30.5 |
| 881210 | 0700 | 0.85 | 0.171 | 0.171 | 5.83 | 5.83 | -6.0 | 10.0 | 5.2 | 34.8 | 32.2 | 31.1 |
| 881210 | 1300 | 0.64 | 0.191 | 0.191 | 5.24 | 5.24 | 2.0 | 6.0 | 2.0 | 36.2 | 31.9 | 32.3 |
| 881210 | 1900 | 0.60 | 0.191 | 0.064 | 5.24 | 15.62 | 0.0 | -2.0 | -1.8 | 42.8 | 36.5 | 36.4 |
| 881211 | 0100 | 0.60 | 0.074 | 0.074 | 13.57 | 13.57 | 0.0 | -2.0 | -0.3 | 35.6 | 35.5 | 38.1 |
| 881211 | 0700 | 0.63 | 0.074 | 0.074 | 13.57 | 13.57 | -22.0 | 2.0 | -1.1 | 44.0 | 37.1 | 43.3 |
| 881211 | 1300 | 1.58 | 0.171 | 0.171 | 5.83 | 5.83 | 36.0 | 38.0 | 16.3 | 38.4 | 37.2 | 35.1 |
| 881211 | 1900 | 1.62 | 0.181 | 0.162 | 5.52 | 6.19 | 2.0 | 18.0 | 8.6 | 35.0 | 32.3 | 30.6 |
| 881212 | 0100 | 1.70 | 0.162 | 0.162 | 6.19 | 6.19 | -4.0 | 16.0 | 9.6 | 30.9 | 30.0 | 30.3 |
| 881212 | 0700 | 1.95 | 0.142 | 0.142 | 7.04 | 7.04 | 2.0 | 10.0 | 8.1 | 34.6 | 33.6 | 32.7 |
| 881212 | 1300 | 1.65 | 0.132 | 0.132 | 7.56 | 7.56 | 8.0 | 10.0 | 13.4 | 35.0 | 33.1 | 29.3 |
| 881212 | 1900 | 1.32 | 0.142 | 0.142 | 7.04 | 7.04 | 10.0 | 8.0 | 11.3 | 36.4 | 35.6 | 34.1 |
| 881213 | 0100 | 1.21 | 0.093 | 0.093 | 10.72 | 10.72 | -10.0 | -4.0 | 7.2 | 37.1 | 35.7 | 31.0 |
| 881213 | 0700 | 1.06 | 0.113 | 0.103 | 8.87 | 9.71 | -10.0 | -6.0 | 7.4 | 40.0 | 39.3 | 30.8 |
| 881213 | 1300 | 0.91 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | 12.0 | 22.0 | 41.7 | 33.1 | 32.4 |
| 881213 | 1900 | 0.75 | 0.191 | 0.113 | 5.24 | 8.87 | 34.0 | 20.0 | 22.2 | 40.5 | 28.3 | 20.8 |
| 881214 | 0100 | 0.65 | 0.093 | 0.093 | 10.72 | 10.72 | 6.0 | 12.0 | 19.7 | 36.0 | 25.5 | 28.5 |
| 881214 | 0700 | 0.90 | 0.171 | 0.103 | 5.83 | 9.71 | 20.0 | 18.0 | 22.0 | 31.4 | 26.2 | 21.0 |
| 881214 | 1300 | 1.17 | 0.142 | 0.142 | 7.04 | 7.04 | 16.0 | 12.0 | 14.9 | 31.1 | 29.7 | 26.2 |
| 881214 | 1900 | 0.97 | 0.103 | 0.103 | 9.71 | 9.71 | -8.0 | 8.0 | 2.6 | 33.9 | 33.1 | 30.9 |
| 881215 | 0100 | 0.77 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -6.0 | -12.6 | 34.6 | 31.4 | 32.7 |
| 881215 | 0700 | 2.09 | 0.064 | 0.064 | 15.62 | 15.62 | -10.0 | -6.0 | -4.6 | 33.8 | 34.7 | 40.7 |
| 881215 | 1300 | 1.70 | 0.064 | 0.064 | 15.62 | 15.62 | -4.0 | -4.0 | -7.5 | 38.1 | 38.7 | 40.6 |
| 881215 | 1900 | 1.72 | 0.064 | 0.064 | 15.62 | 15.62 | -18.0 | -4.0 | -8.9 | 37.4 | 38.6 | 41.9 |
| 881215 | 2200 | 2.19 | 0.064 | 0.064 | 15.62 | 15.62 | -8.0 | 22.0 | 15.6 | 43.7 | 36.5 | 42.1 |

(Continued)

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(Continued)

| Date | Time | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|------------------|-------------------|-------------------|--------------------|------------------------|-------------------------|------------------------|-----------------------------|----------------------------|-----------------------------|
| | | | $f_{L,FD}$ Hz | $f_{p,IFS}$ Hz | $T_{p,FD}$ sec | $T_{p,IFS}$ sec | $\theta_{p,FD}$ deg | $\theta_{p,IDS}$ deg | $\theta_{p,SW}$ deg | $\Delta\theta_{IDS}$ deg | $\Delta\theta_{SW}$ deg | $\Delta\theta_{IDP}$ deg |
| 881216 | 0100 | 2.13 | 0.064 | 0.064 | 15.62 | 15.62 | -12.0 | 16.0 | 13.5 | 41.2 | 35.8 | 40.7 |
| 881216 | 0400 | 2.31 | 0.064 | 0.064 | 15.62 | 15.62 | -8.0 | 10.0 | 11.0 | 36.4 | 34.2 | 41.0 |
| 881216 | 0700 | 2.22 | 0.152 | 0.074 | 6.58 | 13.57 | 6.0 | 10.0 | 9.6 | 36.7 | 35.0 | 32.0 |
| 881216 | 1300 | 1.77 | 0.074 | 0.074 | 13.57 | 13.57 | 2.0 | 14.0 | 14.6 | 38.6 | 35.3 | 39.2 |
| 881216 | 1900 | 1.39 | 0.074 | 0.074 | 13.57 | 13.57 | 4.0 | 8.0 | 5.6 | 33.8 | 32.9 | 34.5 |
| 881217 | 0100 | 1.15 | 0.074 | 0.074 | 13.57 | 13.57 | 6.0 | 14.0 | 18.5 | 38.2 | 36.1 | 39.0 |
| 881217 | 0700 | 0.89 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | 10.0 | 11.3 | 36.3 | 32.0 | 33.0 |
| 881217 | 1300 | 0.83 | 0.074 | 0.074 | 13.57 | 13.57 | 6.0 | 10.0 | 17.5 | 36.7 | 30.1 | 31.1 |
| 881217 | 1900 | 0.83 | 0.162 | 0.191 | 6.19 | 5.24 | 8.0 | 12.0 | 19.0 | 33.7 | 25.5 | 21.3 |
| 881218 | 0100 | 0.83 | 0.142 | 0.142 | 7.04 | 7.04 | 8.0 | 14.0 | 15.5 | 30.6 | 26.6 | 21.9 |
| 881218 | 0700 | 1.16 | 0.132 | 0.132 | 7.56 | 7.56 | 4.0 | 16.0 | 14.4 | 29.5 | 27.2 | 25.9 |
| 881218 | 1300 | 1.03 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | 12.0 | 16.9 | 35.2 | 30.7 | 29.6 |
| 881218 | 1900 | 0.83 | 0.093 | 0.093 | 10.72 | 10.72 | -2.0 | 0.0 | 5.4 | 36.2 | 33.7 | 34.9 |
| 881219 | 0100 | 0.74 | 0.103 | 0.093 | 9.71 | 10.72 | -14.0 | -8.0 | -12.2 | 40.0 | 38.9 | 35.7 |
| 881219 | 0700 | 0.62 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -10.0 | -7.1 | 32.9 | 33.4 | 34.9 |
| 881219 | 1300 | 0.56 | 0.093 | 0.093 | 10.72 | 10.72 | 16.0 | -8.0 | 3.3 | 35.8 | 35.6 | 34.3 |
| 881219 | 1900 | 0.51 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -14.0 | -19.0 | 33.9 | 30.4 | 31.3 |
| 881220 | 0100 | 0.40 | 0.103 | 0.103 | 9.71 | 9.71 | -4.0 | -6.0 | -10.2 | 36.2 | 32.6 | 31.0 |
| 881220 | 0700 | 0.34 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -8.0 | -20.0 | 37.9 | 33.8 | 30.7 |
| 881220 | 1300 | 0.30 | 0.103 | 0.103 | 9.71 | 9.71 | -8.0 | -10.0 | -15.4 | 37.4 | 34.3 | 31.4 |
| 881220 | 1900 | 0.29 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | -12.0 | -28.1 | 37.8 | 30.9 | 32.8 |
| 881221 | 0100 | 0.28 | 0.064 | 0.113 | 15.62 | 8.87 | -10.0 | -28.0 | -33.1 | 35.2 | 31.7 | 25.0 |
| 881221 | 1300 | 0.31 | 0.123 | 0.113 | 8.16 | 8.87 | -22.0 | -26.0 | -32.7 | 30.3 | 25.7 | 20.1 |
| 881221 | 1900 | 0.34 | 0.103 | 0.093 | 9.71 | 10.72 | -18.0 | -22.0 | -31.3 | 31.0 | 29.2 | 22.5 |
| 881222 | 0100 | 0.36 | 0.103 | 0.093 | 9.71 | 10.72 | -22.0 | -26.0 | -26.4 | 29.8 | 28.0 | 23.6 |
| 881222 | 0700 | 1.15 | 0.210 | 0.220 | 4.75 | 4.54 | 8.0 | 30.0 | 32.6 | 40.4 | 35.4 | 35.7 |
| 881222 | 1900 | 1.10 | 0.162 | 0.162 | 6.19 | 6.19 | -2.0 | 8.0 | 12.7 | 44.6 | 39.7 | 37.0 |
| 881223 | 0100 | 0.99 | 0.152 | 0.162 | 6.58 | 6.19 | 22.0 | -4.0 | 12.2 | 42.5 | 39.9 | 36.0 |
| 881223 | 0700 | 0.95 | 0.191 | 0.093 | 5.24 | 10.72 | -12.0 | -10.0 | -8.7 | 42.6 | 41.5 | 38.7 |
| 881223 | 1300 | 0.86 | 0.103 | 0.103 | 9.71 | 9.71 | -22.0 | -18.0 | -11.2 | 44.7 | 44.8 | 43.0 |
| 881223 | 1900 | 0.87 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -22.0 | -9.9 | 44.6 | 44.0 | 34.9 |
| 881224 | 0100 | 0.81 | 0.103 | 0.103 | 9.71 | 9.71 | -24.0 | -24.0 | -20.6 | 43.2 | 41.4 | 39.0 |
| 881224 | 0700 | 0.75 | 0.103 | 0.103 | 9.71 | 9.71 | -24.0 | -26.0 | -11.0 | 46.3 | 42.7 | 39.3 |
| 881224 | 1300 | 0.62 | 0.103 | 0.113 | 9.71 | 8.87 | -24.0 | -24.0 | -25.0 | 42.3 | 37.4 | 33.4 |
| 881224 | 1900 | 0.71 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -28.0 | -35.3 | 41.2 | 31.8 | 32.0 |
| 881225 | 0100 | 0.57 | 0.113 | 0.113 | 8.87 | 8.87 | -24.0 | -28.0 | -35.3 | 34.8 | 28.8 | 29.5 |
| 881225 | 0700 | 0.56 | 0.142 | 0.113 | 7.04 | 8.87 | -36.0 | -36.0 | -39.3 | 33.1 | 30.4 | 23.0 |
| 881225 | 1300 | 0.46 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -16.0 | -32.0 | 33.1 | 30.7 | 30.7 |
| 881225 | 1900 | 0.61 | 0.132 | 0.132 | 7.56 | 7.56 | -16.0 | 2.0 | -16.7 | 35.9 | 32.6 | 29.5 |
| 881226 | 0100 | 0.53 | 0.113 | 0.123 | 8.87 | 8.16 | -24.0 | -22.0 | -11.6 | 38.0 | 29.0 | 27.9 |
| 881226 | 1300 | 1.39 | 0.152 | 0.152 | 6.58 | 6.58 | 4.0 | 12.0 | 23.4 | 37.5 | 35.7 | 38.4 |
| 881226 | 1900 | 1.10 | 0.181 | 0.142 | 5.52 | 7.04 | 14.0 | 18.0 | 19.2 | 38.9 | 35.0 | 33.8 |
| 881227 | 0100 | 0.90 | 0.201 | 0.201 | 4.98 | 4.98 | 40.0 | 18.0 | 24.4 | 41.0 | 34.5 | 35.1 |
| 881227 | 0700 | 0.77 | 0.201 | 0.201 | 4.98 | 4.98 | 38.0 | 20.0 | 11.5 | 43.2 | 38.1 | 35.0 |
| 881227 | 1300 | 0.61 | 0.113 | 0.123 | 8.87 | 8.16 | -6.0 | -12.0 | 12.8 | 43.9 | 43.9 | 34.4 |
| 881227 | 1900 | 0.63 | 0.123 | 0.123 | 8.16 | 8.16 | -6.0 | -8.0 | 1.6 | 41.1 | 41.7 | 34.8 |
| 881228 | 0100 | 0.60 | 0.093 | 0.093 | 10.72 | 10.72 | -22.0 | -22.0 | -17.0 | 43.9 | 40.0 | 29.9 |
| 881228 | 0700 | 0.71 | 0.083 | 0.083 | 11.98 | 11.98 | -18.0 | -20.0 | -30.6 | 41.3 | 35.7 | 29.0 |
| 881228 | 1300 | 0.80 | 0.318 | 0.142 | 3.15 | 7.04 | -58.0 | -58.0 | -38.8 | 31.5 | 21.7 | 11.8 |

(Continued)

(Sheet 8 of 30)

(Continued)

| Date | Time | H _{ms} | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|-----------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------------------|-------------------|
| | | | f _{p,FD} | f _{p,IFS} | T _{p,FD} | T _{p,IFS} | θ _{p,FD} | θ _{p,IDS} | θ _{p,SW} | Δθ _{IDS} | Δθ _{SW} | Δθ _{FDP} |
| | EST | m | Hz | Hz | sec | sec | deg | deg | deg | deg | deg | deg |
| 881228 | 1900 | 0.65 | 0.132 | 0.132 | 7.56 | 7.56 | -34.0 | -34.0 | -37.4 | 33.3 | 24.4 | 24.2 |
| 881229 | 0100 | 0.91 | 0.220 | 0.220 | 4.54 | 4.54 | 52.0 | 54.0 | 34.1 | 59.7 | 27.1 | 17.4 |
| 881229 | 0700 | 1.60 | 0.162 | 0.162 | 6.19 | 6.19 | 6.0 | 14.0 | 22.7 | 37.5 | 35.1 | 35.2 |
| 881229 | 1300 | 1.14 | 0.162 | 0.162 | 6.19 | 6.19 | 32.0 | 8.0 | 27.9 | 43.1 | 39.4 | 38.0 |
| 881229 | 1900 | 0.83 | 0.142 | 0.132 | 7.04 | 7.56 | 18.0 | 10.0 | 12.2 | 42.8 | 40.2 | 36.7 |
| 881230 | 0100 | 0.77 | 0.142 | 0.142 | 7.04 | 7.04 | -10.0 | -14.0 | 9.7 | 45.1 | 42.1 | 40.3 |
| 881230 | 0700 | 0.82 | 0.259 | 0.162 | 3.86 | 6.19 | 14.0 | 18.0 | 13.4 | 41.3 | 36.3 | 25.9 |
| 881230 | 1300 | 0.68 | 0.230 | 0.064 | 4.35 | 15.62 | 36.0 | 8.0 | 12.8 | 45.1 | 37.6 | 27.9 |
| 881230 | 1900 | 0.59 | 0.064 | 0.064 | 15.62 | 15.62 | -4.0 | -16.0 | 2.1 | 39.5 | 36.7 | 29.3 |
| 881231 | 0100 | 0.48 | 0.064 | 0.103 | 15.62 | 9.71 | -10.0 | -12.0 | -5.4 | 35.1 | 35.9 | 24.7 |
| 881231 | 0700 | 0.39 | 0.103 | 0.113 | 9.71 | 8.87 | -16.0 | -12.0 | -14.3 | 32.9 | 33.7 | 29.0 |
| 881231 | 1300 | 0.41 | 0.074 | 0.074 | 13.57 | 13.57 | -10.0 | 58.0 | 16.8 | 62.0 | 34.9 | 21.8 |
| 881231 | 1900 | 0.38 | 0.113 | 0.113 | 8.87 | 8.87 | -22.0 | -18.0 | -14.4 | 34.0 | 36.2 | 25.3 |
| 890101 | 0100 | 0.47 | 0.113 | 0.103 | 8.87 | 9.71 | -22.0 | 12.0 | -1.4 | 40.3 | 34.7 | 31.6 |
| 890101 | 0700 | 1.40 | 0.191 | 0.181 | 5.24 | 5.52 | -4.0 | -6.0 | -5.5 | 31.7 | 31.4 | 27.4 |
| 890101 | 1300 | 1.40 | 0.162 | 0.162 | 6.19 | 6.19 | 14.0 | -14.0 | 2.5 | 45.1 | 44.7 | 38.8 |
| 890101 | 1900 | 1.87 | 0.142 | 0.132 | 7.04 | 7.56 | -10.0 | 2.0 | 9.7 | 43.3 | 39.3 | 39.8 |
| 890102 | 0100 | 1.78 | 0.123 | 0.123 | 8.16 | 8.16 | -2.0 | 2.0 | 7.7 | 37.3 | 37.1 | 37.9 |
| 890102 | 0700 | 1.54 | 0.093 | 0.093 | 10.72 | 10.72 | 4.0 | 2.0 | 6.5 | 34.1 | 33.9 | 32.5 |
| 890102 | 1300 | 1.23 | 0.093 | 0.093 | 10.72 | 10.72 | -2.0 | 2.0 | 6.2 | 33.2 | 33.2 | 33.7 |
| 890102 | 1900 | 0.82 | 0.103 | 0.113 | 9.71 | 8.87 | 8.0 | 8.0 | 4.1 | 33.0 | 32.6 | 30.0 |
| 890103 | 0100 | 0.69 | 0.093 | 0.103 | 10.72 | 9.71 | 6.0 | 8.0 | 5.6 | 34.0 | 34.5 | 26.5 |
| 890103 | 0700 | 0.55 | 0.113 | 0.103 | 8.87 | 9.71 | 4.0 | 2.0 | 1.5 | 31.9 | 32.6 | 29.2 |
| 890103 | 1300 | 0.51 | 0.103 | 0.103 | 9.71 | 9.71 | 8.0 | 0.0 | 2.2 | 31.2 | 33.2 | 28.9 |
| 890103 | 1600 | 0.57 | 0.103 | 0.103 | 9.71 | 9.71 | -10.0 | -10.0 | 10.5 | 41.0 | 33.9 | 31.1 |
| 890103 | 1900 | 0.57 | 0.113 | 0.113 | 8.87 | 8.87 | -8.0 | 2.0 | 12.8 | 39.4 | 34.7 | 32.4 |
| 890103 | 2200 | 0.55 | 0.113 | 0.113 | 8.87 | 8.87 | -6.0 | 18.0 | 15.6 | 37.3 | 27.7 | 31.7 |
| 890104 | 0100 | 1.30 | 0.318 | 0.210 | 3.15 | 4.75 | 54.0 | 54.0 | 45.4 | 31.7 | 25.2 | 20.3 |
| 890104 | 0400 | 1.52 | 0.318 | 0.162 | 3.15 | 6.19 | 52.0 | 52.0 | 38.4 | 30.7 | 25.5 | 27.1 |
| 890104 | 0700 | 2.05 | 0.142 | 0.142 | 7.04 | 7.04 | 20.0 | 20.0 | 20.9 | 30.7 | 28.4 | 26.6 |
| 890104 | 1000 | 2.19 | 0.142 | 0.142 | 7.04 | 7.04 | 22.0 | 18.0 | 22.4 | 31.7 | 29.3 | 29.0 |
| 890104 | 1300 | 2.08 | 0.132 | 0.132 | 7.56 | 7.56 | 10.0 | 14.0 | 16.5 | 34.0 | 32.4 | 30.1 |
| 890104 | 1600 | 1.98 | 0.132 | 0.113 | 7.56 | 8.87 | 18.0 | 14.0 | 16.8 | 35.1 | 32.5 | 29.8 |
| 890104 | 1900 | 1.92 | 0.123 | 0.123 | 8.16 | 8.16 | 2.0 | 12.0 | 17.7 | 35.0 | 32.1 | 30.8 |
| 890104 | 2200 | 1.98 | 0.093 | 0.093 | 10.72 | 10.72 | 10.0 | 14.0 | 10.2 | 34.6 | 33.2 | 36.6 |
| 890105 | 0100 | 1.88 | 0.103 | 0.103 | 9.71 | 9.71 | 16.0 | 12.0 | 21.1 | 36.7 | 32.8 | 32.3 |
| 890105 | 0400 | 1.57 | 0.103 | 0.103 | 9.71 | 9.71 | 14.0 | 10.0 | 18.3 | 37.2 | 34.0 | 32.8 |
| 890105 | 0700 | 1.47 | 0.093 | 0.093 | 10.72 | 10.72 | -2.0 | 8.0 | 8.5 | 35.6 | 34.2 | 40.2 |
| 890105 | 1300 | 1.61 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | 0.0 | 3.5 | 38.7 | 38.0 | 41.0 |
| 890105 | 1900 | 1.32 | 0.074 | 0.074 | 13.57 | 13.57 | -6.0 | -6.0 | 2.0 | 37.4 | 36.8 | 35.5 |
| 890106 | 0100 | 1.13 | 0.074 | 0.074 | 13.57 | 13.57 | -10.0 | -8.0 | -0.1 | 33.9 | 33.9 | 34.2 |
| 890106 | 0700 | 1.00 | 0.074 | 0.074 | 13.57 | 13.57 | -10.0 | -12.0 | -14.1 | 38.4 | 34.0 | 36.4 |
| 890106 | 1300 | 0.90 | 0.074 | 0.074 | 13.57 | 13.57 | -8.0 | -14.0 | -11.5 | 32.2 | 32.5 | 35.5 |
| 890106 | 1900 | 0.77 | 0.074 | 0.074 | 13.57 | 13.57 | -10.0 | -6.0 | -14.3 | 40.2 | 38.5 | 31.6 |
| 890107 | 0100 | 0.70 | 0.083 | 0.083 | 11.98 | 11.98 | -10.0 | -14.0 | -15.2 | 41.8 | 41.1 | 33.2 |
| 890107 | 0700 | 0.93 | 0.298 | 0.083 | 3.35 | 11.98 | 52.0 | 18.0 | 11.5 | 52.4 | 43.6 | 36.3 |
| 890107 | 1300 | 1.03 | 0.123 | 0.113 | 8.16 | 8.87 | 14.0 | 20.0 | 9.0 | 43.4 | 38.8 | 35.2 |
| 890107 | 1900 | 1.04 | 0.103 | 0.113 | 9.71 | 8.87 | 12.0 | 12.0 | 10.8 | 43.9 | 42.5 | 40.5 |
| 890108 | 0100 | 1.03 | 0.103 | 0.103 | 9.71 | 9.71 | 14.0 | -2.0 | 7.6 | 39.6 | 38.4 | 37.5 |
| 890108 | 0700 | 0.96 | 0.113 | 0.103 | 8.87 | 9.71 | 6.0 | 8.0 | 5.3 | 43.4 | 42.7 | 36.9 |

(Continued)

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(Continued)

| Date | Time | E _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890108 | 1300 | 0.86 | 0.103 | 0.103 | 9.71 | 9.71 | 0.0 | -6.0 | -9.0 | 37.8 | 36.0 | 38.9 |
| 890108 | 1900 | 0.77 | 0.093 | 0.093 | 10.72 | 10.72 | 0.0 | -4.0 | -9.5 | 43.5 | 37.7 | 34.4 |
| 890109 | 0100 | 0.64 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | 10.0 | -8.0 | 40.0 | 34.7 | 29.4 |
| 890109 | 0700 | 0.64 | 0.093 | 0.093 | 10.72 | 10.72 | 2.0 | -6.0 | 6.0 | 49.8 | 48.5 | 32.1 |
| 890109 | 1900 | 0.87 | 0.201 | 0.201 | 4.98 | 4.98 | 12.0 | 6.0 | 5.8 | 34.2 | 33.6 | 27.3 |
| 890110 | 0100 | 1.05 | 0.181 | 0.171 | 5.52 | 5.83 | 2.0 | 6.0 | 7.4 | 33.0 | 32.2 | 27.7 |
| 890110 | 0700 | 1.19 | 0.210 | 0.201 | 4.75 | 4.98 | 2.0 | -2.0 | -1.5 | 34.0 | 32.6 | 22.9 |
| 890110 | 1300 | 1.19 | 0.171 | 0.171 | 5.83 | 5.83 | -8.0 | -8.0 | -9.7 | 38.6 | 38.9 | 35.1 |
| 890110 | 1900 | 1.00 | 0.191 | 0.191 | 5.24 | 5.24 | -10.0 | -8.0 | -9.1 | 37.3 | 37.7 | 31.3 |
| 890111 | 0100 | 0.85 | 0.123 | 0.123 | 8.16 | 8.16 | -26.0 | -22.0 | -10.9 | 39.0 | 38.7 | 29.7 |
| 890111 | 1900 | 0.94 | 0.123 | 0.123 | 8.16 | 8.16 | -8.0 | -16.0 | -7.9 | 35.8 | 36.3 | 33.2 |
| 890112 | 0100 | 1.26 | 0.171 | 0.171 | 5.83 | 5.83 | -12.0 | -14.0 | -9.9 | 35.7 | 35.5 | 32.6 |
| 890112 | 0700 | 1.35 | 0.162 | 0.162 | 6.19 | 6.19 | -20.0 | -18.0 | -17.6 | 40.2 | 41.2 | 42.1 |
| 890112 | 1300 | 1.69 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -18.0 | -14.3 | 36.7 | 36.9 | 35.5 |
| 890112 | 1900 | 1.20 | 0.123 | 0.123 | 8.16 | 8.16 | -18.0 | -22.0 | -20.2 | 38.2 | 38.3 | 36.6 |
| 890113 | 0100 | 0.85 | 0.123 | 0.123 | 8.16 | 8.16 | -28.0 | -26.0 | -18.2 | 41.9 | 38.9 | 38.6 |
| 890113 | 0700 | 0.70 | 0.113 | 0.113 | 8.87 | 8.87 | -22.0 | -26.0 | -14.1 | 39.9 | 36.1 | 33.8 |
| 890113 | 1300 | 1.78 | 0.171 | 0.191 | 5.83 | 5.24 | 12.0 | 22.0 | 24.8 | 36.8 | 32.5 | 29.6 |
| 890113 | 1600 | 1.95 | 0.162 | 0.162 | 6.19 | 6.19 | 8.0 | 14.0 | 17.2 | 33.4 | 30.9 | 29.0 |
| 890113 | 1900 | 2.25 | 0.152 | 0.142 | 6.58 | 7.04 | 2.0 | 12.0 | 12.5 | 35.4 | 33.1 | 33.5 |
| 890114 | 0100 | 1.52 | 0.152 | 0.152 | 6.58 | 6.58 | 4.0 | 16.0 | 11.1 | 36.6 | 35.5 | 33.9 |
| 890114 | 0700 | 1.19 | 0.132 | 0.132 | 7.56 | 7.56 | 8.0 | -2.0 | 4.3 | 39.9 | 39.3 | 34.0 |
| 890114 | 1300 | 0.97 | 0.142 | 0.132 | 7.04 | 7.56 | 16.0 | -8.0 | -6.8 | 41.2 | 40.3 | 35.3 |
| 890114 | 1900 | 1.02 | 0.113 | 0.162 | 8.87 | 6.19 | -16.0 | -12.0 | -12.6 | 40.7 | 40.1 | 34.6 |
| 890115 | 0100 | 1.03 | 0.181 | 0.171 | 5.52 | 5.83 | -28.0 | -24.0 | -25.4 | 42.1 | 39.0 | 36.5 |
| 890115 | 0700 | 1.00 | 0.142 | 0.142 | 7.04 | 7.04 | -12.0 | -22.0 | -21.0 | 35.7 | 34.8 | 35.0 |
| 890115 | 1300 | 0.85 | 0.142 | 0.142 | 7.04 | 7.04 | -14.0 | -24.0 | -21.8 | 36.8 | 35.5 | 36.6 |
| 890115 | 1900 | 0.70 | 0.142 | 0.103 | 7.04 | 9.71 | -32.0 | -28.0 | -26.4 | 36.3 | 32.5 | 36.0 |
| 890116 | 0100 | 0.63 | 0.103 | 0.103 | 9.71 | 9.71 | -22.0 | -26.0 | -25.0 | 43.0 | 39.6 | 37.8 |
| 890116 | 0700 | 0.54 | 0.103 | 0.103 | 9.71 | 9.71 | -22.0 | -26.0 | -23.2 | 40.1 | 40.8 | 37.2 |
| 890116 | 1300 | 1.19 | 0.230 | 0.230 | 4.35 | 4.35 | 40.0 | 40.0 | 33.3 | 37.8 | 28.6 | 18.6 |
| 890116 | 1900 | 0.89 | 0.171 | 0.171 | 5.83 | 5.83 | 10.0 | 14.0 | 22.5 | 36.9 | 33.0 | 26.7 |
| 890117 | 0100 | 0.75 | 0.191 | 0.191 | 5.24 | 5.24 | 8.0 | 10.0 | 14.7 | 39.1 | 35.6 | 29.0 |
| 890117 | 0700 | 0.76 | 0.113 | 0.113 | 8.87 | 8.87 | -18.0 | 6.0 | 4.2 | 37.5 | 33.1 | 30.9 |
| 890117 | 1900 | 0.49 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -14.0 | -15.0 | 34.4 | 34.8 | 32.4 |
| 890118 | 0100 | 0.43 | 0.113 | 0.103 | 8.87 | 9.71 | -26.0 | -18.0 | -19.9 | 34.2 | 33.9 | 33.4 |
| 890118 | 1300 | 0.43 | 0.103 | 0.103 | 9.71 | 9.71 | -18.0 | -18.0 | -19.2 | 31.3 | 32.3 | 34.8 |
| 890118 | 1900 | 0.39 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -22.0 | -21.1 | 32.7 | 32.5 | 31.1 |
| 890119 | 0100 | 0.35 | 0.103 | 0.103 | 9.71 | 9.71 | -18.0 | -24.0 | -15.8 | 35.5 | 35.3 | 35.3 |
| 890119 | 0700 | 0.27 | 0.103 | 0.103 | 9.71 | 9.71 | -34.0 | -18.0 | -19.8 | 45.8 | 39.3 | 34.8 |
| 890119 | 1300 | 0.28 | 0.103 | 0.103 | 9.71 | 9.71 | -34.0 | -22.0 | -12.2 | 44.2 | 46.9 | 34.3 |
| 890119 | 1900 | 0.30 | 0.103 | 0.103 | 9.71 | 9.71 | -38.0 | -14.0 | -19.4 | 38.4 | 39.4 | 30.7 |
| 890120 | 0100 | 0.30 | 0.113 | 0.113 | 8.87 | 8.87 | -24.0 | -32.0 | -18.2 | 35.7 | 36.3 | 33.0 |
| 890120 | 0700 | 0.30 | 0.132 | 0.113 | 7.56 | 8.87 | -24.0 | -14.0 | -23.9 | 35.7 | 37.0 | 22.8 |
| 890120 | 1300 | 0.25 | 0.113 | 0.103 | 8.87 | 9.71 | -38.0 | -14.0 | -23.4 | 33.5 | 34.5 | 32.1 |
| 890120 | 1900 | 0.36 | 0.318 | 0.318 | 3.15 | 3.15 | 54.0 | 54.0 | 11.4 | 86.7 | 34.4 | 59.7 |
| 890121 | 0100 | 1.14 | 0.181 | 0.181 | 5.52 | 5.52 | 22.0 | 26.0 | 30.3 | 27.5 | 27.0 | 25.0 |
| 890121 | 0700 | 2.05 | 0.142 | 0.142 | 7.04 | 7.04 | 14.0 | 20.0 | 21.8 | 30.8 | 28.9 | 25.9 |

(Continued)

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(Continued)

| Date | Time EST | R_{90} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|---------------|------------------|-------------------|-------------------|--------------------|------------------------|-------------------------|------------------------|-----------------------------|----------------------------|-----------------------------|
| | | | $f_{p,FD}$ Hz | $f_{p,IFS}$ Hz | $T_{p,FD}$ sec | $T_{p,IFS}$ sec | $\theta_{p,FD}$ deg | $\theta_{p,IDS}$ deg | $\theta_{p,SW}$ deg | $\Delta\theta_{IDS}$ deg | $\Delta\theta_{SW}$ deg | $\Delta\theta_{FDE}$ deg |
| 890121 | 1300 | 1.77 | 0.171 | 0.171 | 5.83 | 5.83 | 16.0 | 14.0 | 17.4 | 30.9 | 29.4 | 27.5 |
| 890121 | 1900 | 1.40 | 0.152 | 0.162 | 6.58 | 6.19 | 2.0 | 12.0 | 18.5 | 35.6 | 33.1 | 32.4 |
| 890122 | 0100 | 1.13 | 0.132 | 0.132 | 7.56 | 7.56 | 12.0 | 6.0 | 8.8 | 33.9 | 35.3 | 29.0 |
| 890122 | 0700 | 1.02 | 0.259 | 0.132 | 3.86 | 7.56 | 10.0 | 8.0 | 6.4 | 36.1 | 35.6 | 33.5 |
| 890122 | 1300 | 0.99 | 0.201 | 0.142 | 4.98 | 7.04 | -10.0 | -6.0 | 0.1 | 33.8 | 33.9 | 28.7 |
| 890122 | 1900 | 1.05 | 0.191 | 0.201 | 5.24 | 4.98 | -10.0 | -10.0 | -2.4 | 38.0 | 37.6 | 33.4 |
| 890123 | 0100 | 1.36 | 0.191 | 0.181 | 5.24 | 5.52 | -6.0 | -8.0 | -2.1 | 38.3 | 37.6 | 26.4 |
| 890123 | 0700 | 2.14 | 0.113 | 0.113 | 8.87 | 8.87 | -22.0 | -14.0 | -10.8 | 40.3 | 39.9 | 38.1 |
| 890123 | 1300 | 2.53 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | -12.0 | -4.3 | 38.4 | 39.4 | 39.4 |
| 890123 | 1300 | 2.87 | 0.093 | 0.093 | 10.72 | 10.72 | -20.0 | -16.0 | -8.3 | 37.7 | 40.3 | 37.9 |
| 890123 | 1600 | 3.00 | 0.093 | 0.093 | 10.72 | 10.72 | -18.0 | -16.0 | -9.7 | 37.2 | 38.9 | 37.8 |
| 890123 | 1900 | 2.96 | 0.093 | 0.093 | 10.72 | 10.72 | -4.0 | -6.0 | -5.3 | 37.9 | 39.3 | 37.7 |
| 890123 | 2200 | 2.81 | 0.083 | 0.083 | 11.98 | 11.98 | 4.0 | -10.0 | -1.1 | 38.9 | 40.1 | 39.5 |
| 890124 | 0100 | 2.74 | 0.083 | 0.083 | 11.98 | 11.98 | -2.0 | -10.0 | -1.8 | 38.0 | 39.1 | 37.0 |
| 890124 | 0400 | 2.78 | 0.083 | 0.083 | 11.98 | 11.98 | 14.0 | -8.0 | 1.0 | 36.6 | 37.1 | 37.3 |
| 890124 | 0700 | 2.43 | 0.093 | 0.093 | 10.72 | 10.72 | 4.0 | -8.0 | -1.5 | 37.9 | 38.1 | 37.6 |
| 890124 | 1300 | 2.01 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -10.0 | -10.4 | 37.4 | 37.7 | 41.1 |
| 890124 | 1900 | 1.85 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -12.0 | -7.2 | 39.3 | 39.5 | 44.6 |
| 890125 | 0100 | 1.46 | 0.093 | 0.093 | 10.72 | 10.72 | 14.0 | 10.0 | 1.9 | 37.5 | 37.8 | 38.1 |
| 890125 | 0700 | 1.23 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | -14.0 | -5.8 | 38.9 | 39.2 | 39.3 |
| 890125 | 1300 | 1.10 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | -14.0 | -8.0 | 35.1 | 35.4 | 38.7 |
| 890125 | 1900 | 1.22 | 0.103 | 0.103 | 9.71 | 9.71 | -10.0 | -14.0 | -7.4 | 37.8 | 37.6 | 41.8 |
| 890126 | 0100 | 1.31 | 0.162 | 0.103 | 6.19 | 9.71 | 28.0 | -6.0 | 1.3 | 39.6 | 38.8 | 37.4 |
| 890126 | 0700 | 1.26 | 0.152 | 0.152 | 6.58 | 6.58 | 28.0 | -8.0 | 3.8 | 39.7 | 39.6 | 36.7 |
| 890126 | 1300 | 1.13 | 0.113 | 0.113 | 8.87 | 8.87 | 12.0 | -10.0 | 2.8 | 40.1 | 40.6 | 40.7 |
| 890126 | 1900 | 1.01 | 0.113 | 0.113 | 8.87 | 8.87 | 20.0 | -14.0 | 5.2 | 42.5 | 42.6 | 46.8 |
| 890127 | 0100 | 0.80 | 0.103 | 0.103 | 9.71 | 9.71 | 10.0 | -18.0 | -8.8 | 44.9 | 37.3 | 39.3 |
| 890127 | 0700 | 0.62 | 0.064 | 0.064 | 15.62 | 15.62 | 4.0 | -30.0 | -29.5 | 47.2 | 35.6 | 31.5 |
| 890127 | 1300 | 0.47 | 0.064 | 0.064 | 15.62 | 15.62 | 0.0 | -18.0 | -27.3 | 46.8 | 32.8 | 28.6 |
| 890127 | 1900 | 0.51 | 0.064 | 0.064 | 15.62 | 15.62 | -10.0 | -14.0 | -27.5 | 40.7 | 41.3 | 25.1 |
| 890128 | 0100 | 0.53 | 0.064 | 0.064 | 15.62 | 15.62 | -18.0 | 12.0 | 0.5 | 42.3 | 33.5 | 27.9 |
| 890128 | 0700 | 1.09 | 0.171 | 0.171 | 5.83 | 5.83 | 4.0 | 2.0 | 9.5 | 36.6 | 35.8 | 30.9 |
| 890128 | 1300 | 0.95 | 0.162 | 0.171 | 6.19 | 5.83 | -14.0 | -8.0 | -4.1 | 37.2 | 37.6 | 34.8 |
| 890128 | 1900 | 0.71 | 0.171 | 0.162 | 5.83 | 6.19 | 22.0 | 16.0 | 8.1 | 42.9 | 40.0 | 39.0 |
| 890129 | 0100 | 0.58 | 0.103 | 0.103 | 9.71 | 9.71 | -10.0 | -12.0 | -0.2 | 41.7 | 43.3 | 31.6 |
| 890129 | 0700 | 0.46 | 0.113 | 0.103 | 8.87 | 9.71 | -16.0 | -16.0 | -16.7 | 34.3 | 34.0 | 26.5 |
| 890129 | 1300 | 0.39 | 0.103 | 0.093 | 9.71 | 10.72 | -22.0 | -22.0 | -23.2 | 34.2 | 32.3 | 28.1 |
| 890129 | 1900 | 0.36 | 0.103 | 0.103 | 9.71 | 9.71 | -24.0 | -22.0 | -20.9 | 34.1 | 32.0 | 31.2 |
| 890130 | 0100 | 0.35 | 0.103 | 0.103 | 9.71 | 9.71 | -26.0 | -26.0 | -23.4 | 36.4 | 34.3 | 26.9 |
| 890130 | 0700 | 0.32 | 0.103 | 0.103 | 9.71 | 9.71 | -24.0 | -26.0 | -29.3 | 33.4 | 30.1 | 30.6 |
| 890130 | 1900 | 0.37 | 0.123 | 0.103 | 8.16 | 9.71 | -42.0 | -42.0 | -34.2 | 30.5 | 26.0 | 20.8 |
| 890131 | 0100 | 0.52 | 0.308 | 0.308 | 3.25 | 3.25 | 62.0 | 60.0 | 5.8 | 86.6 | 33.7 | 40.0 |
| 890131 | 0700 | 0.82 | 0.230 | 0.230 | 4.35 | 4.35 | 50.0 | 52.0 | 36.3 | 39.8 | 32.4 | 26.4 |
| 890131 | 1300 | 0.52 | 0.210 | 0.210 | 4.75 | 4.75 | 44.0 | 18.0 | 10.8 | 52.3 | 39.1 | 37.5 |
| 890201 | 1900 | 0.29 | 0.142 | 0.142 | 7.04 | 7.04 | -28.0 | -30.0 | -32.1 | 42.5 | 33.3 | 32.7 |
| 890201 | 2200 | 0.30 | 0.142 | 0.142 | 7.04 | 7.04 | -24.0 | -30.0 | -35.6 | 40.5 | 30.4 | 29.7 |
| 890202 | 0100 | 0.33 | 0.240 | 0.132 | 4.17 | 7.56 | -66.0 | -66.0 | -42.3 | 44.2 | 31.4 | 21.8 |
| 890202 | 0400 | 0.29 | 0.142 | 0.142 | 7.04 | 7.04 | -32.0 | -32.0 | -35.3 | 44.2 | 34.8 | 39.3 |
| 890202 | 0700 | 0.29 | 0.132 | 0.142 | 7.56 | 7.04 | -40.0 | -62.0 | -36.7 | 43.9 | 32.0 | 33.4 |

(Continued)

(Sheet 11 of 30)

(Continued)

| Date | Time | H _m m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|---------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|--------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{IFS} deg |
| 890202 | 1300 | 0.28 | 0.142 | 0.142 | 7.04 | 7.04 | -42.0 | -42.0 | -32.8 | 41.6 | 35.4 | 19.1 |
| 890202 | 1900 | 0.27 | 0.103 | 0.103 | 9.71 | 9.71 | -26.0 | -26.0 | -31.5 | 46.4 | 40.0 | 35.2 |
| 890203 | 0100 | 0.31 | 0.103 | 0.103 | 9.71 | 9.71 | -22.0 | -26.0 | -32.0 | 48.7 | 41.8 | 38.3 |
| 890203 | 0700 | 0.31 | 0.123 | 0.113 | 8.16 | 8.87 | 8.0 | -30.0 | -32.8 | 54.8 | 42.5 | 43.6 |
| 890203 | 1300 | 0.60 | 0.142 | 0.132 | 7.04 | 7.56 | 22.0 | 24.0 | 16.8 | 50.9 | 48.6 | 42.5 |
| 890203 | 1900 | 1.14 | 0.308 | 0.298 | 3.25 | 3.35 | 46.0 | 44.0 | 33.4 | 25.7 | 21.2 | 15.3 |
| 890204 | 0100 | 2.00 | 0.162 | 0.152 | 6.19 | 6.58 | 2.0 | 4.0 | 13.0 | 33.9 | 32.5 | 33.0 |
| 890204 | 0700 | 1.94 | 0.142 | 0.142 | 7.04 | 7.04 | 0.0 | 8.0 | 13.1 | 35.9 | 34.0 | 30.5 |
| 890204 | 1300 | 1.65 | 0.132 | 0.132 | 7.56 | 7.56 | 8.0 | 6.0 | 13.9 | 34.3 | 33.4 | 34.7 |
| 890204 | 1900 | 1.41 | 0.132 | 0.132 | 7.56 | 7.56 | 6.0 | 4.0 | 11.3 | 36.8 | 34.4 | 36.3 |
| 890205 | 0100 | 1.12 | 0.132 | 0.132 | 7.56 | 7.56 | 2.0 | 2.0 | 12.7 | 36.3 | 35.1 | 33.1 |
| 890205 | 0700 | 1.03 | 0.123 | 0.123 | 8.16 | 8.16 | -10.0 | -4.0 | 12.5 | 39.5 | 35.8 | 32.5 |
| 890205 | 1300 | 1.12 | 0.113 | 0.113 | 8.87 | 8.87 | 2.0 | 16.0 | 15.2 | 38.6 | 32.4 | 32.5 |
| 890205 | 1900 | 0.99 | 0.113 | 0.113 | 8.87 | 8.87 | 6.0 | 6.0 | 15.2 | 41.5 | 36.7 | 36.9 |
| 890206 | 0100 | 0.88 | 0.191 | 0.113 | 5.24 | 8.87 | 8.0 | 4.0 | 10.5 | 39.2 | 34.6 | 29.3 |
| 890206 | 0700 | 0.79 | 0.162 | 0.162 | 6.19 | 6.19 | 0.0 | 10.0 | 10.1 | 38.8 | 34.6 | 32.3 |
| 890206 | 1300 | 0.57 | 0.152 | 0.152 | 6.58 | 6.58 | 24.0 | 2.0 | 9.0 | 36.7 | 36.0 | 31.0 |
| 890206 | 1900 | 0.52 | 0.142 | 0.142 | 7.04 | 7.04 | 10.0 | 14.0 | 11.5 | 40.6 | 39.4 | 31.1 |
| 890207 | 0100 | 0.43 | 0.142 | 0.123 | 7.04 | 8.16 | 10.0 | 8.0 | 5.6 | 38.4 | 38.1 | 29.6 |
| 890207 | 0700 | 0.42 | 0.064 | 0.064 | 15.62 | 15.62 | -8.0 | -14.0 | -17.6 | 46.1 | 46.2 | 30.1 |
| 890207 | 1000 | 0.45 | 0.318 | 0.318 | 3.15 | 3.15 | 52.0 | -8.0 | -0.1 | 52.1 | 39.5 | 27.8 |
| 890207 | 1300 | 1.02 | 0.230 | 0.240 | 4.35 | 4.17 | 46.0 | 44.0 | 35.9 | 27.4 | 24.4 | 18.2 |
| 890207 | 1900 | 1.28 | 0.162 | 0.171 | 6.19 | 5.83 | 26.0 | 16.0 | 29.6 | 36.1 | 33.6 | 29.7 |
| 890208 | 0100 | 1.15 | 0.162 | 0.162 | 6.19 | 6.19 | 2.0 | 8.0 | 12.6 | 32.6 | 31.9 | 29.7 |
| 890208 | 0700 | 1.02 | 0.181 | 0.171 | 5.52 | 5.83 | 12.0 | 10.0 | 18.3 | 38.3 | 37.2 | 37.0 |
| 890208 | 1300 | 0.84 | 0.181 | 0.191 | 5.52 | 5.24 | 4.0 | 4.0 | 14.0 | 37.1 | 33.9 | 32.4 |
| 890208 | 1900 | 0.65 | 0.191 | 0.191 | 5.24 | 5.24 | 12.0 | 12.0 | 16.0 | 40.5 | 36.0 | 28.3 |
| 890209 | 0100 | 0.44 | 0.308 | 0.308 | 3.25 | 3.25 | 54.0 | 50.0 | 29.9 | 47.4 | 20.7 | 17.1 |
| 890209 | 0700 | 0.70 | 0.279 | 0.279 | 3.59 | 3.59 | 52.0 | 52.0 | 45.3 | 31.2 | 27.2 | 13.1 |
| 890209 | 1300 | 1.13 | 0.142 | 0.142 | 7.04 | 7.04 | 20.0 | 26.0 | 29.0 | 33.6 | 26.4 | 26.8 |
| 890209 | 1900 | 0.83 | 0.152 | 0.142 | 6.58 | 7.04 | 24.0 | 24.0 | 30.3 | 34.6 | 31.9 | 24.4 |
| 890210 | 0100 | 0.57 | 0.181 | 0.171 | 5.52 | 5.83 | 38.0 | 36.0 | 30.2 | 34.9 | 27.5 | 23.7 |
| 890210 | 0700 | 0.40 | 0.142 | 0.142 | 7.04 | 7.04 | 6.0 | 22.0 | 12.2 | 43.7 | 37.3 | 31.7 |
| 890210 | 1900 | 0.41 | 0.240 | 0.318 | 4.17 | 3.15 | 66.0 | 66.0 | 41.3 | 63.1 | 31.6 | 29.0 |
| 890211 | 0100 | 0.28 | 0.103 | 0.103 | 9.71 | 9.71 | -36.0 | -20.0 | -4.4 | 50.7 | 51.4 | 31.3 |
| 890211 | 0700 | 0.27 | 0.113 | 0.103 | 8.87 | 9.71 | -34.0 | -16.0 | -24.0 | 36.7 | 36.6 | 24.2 |
| 890211 | 1300 | 0.25 | 0.093 | 0.103 | 10.72 | 9.71 | -32.0 | -32.0 | -29.7 | 34.1 | 36.3 | 22.5 |
| 890211 | 1900 | 0.25 | 0.103 | 0.103 | 9.71 | 9.71 | -24.0 | -22.0 | -35.2 | 38.3 | 40.1 | 29.2 |
| 890212 | 0100 | 0.25 | 0.103 | 0.103 | 9.71 | 9.71 | -28.0 | -34.0 | -25.3 | 36.8 | 35.6 | 17.5 |
| 890212 | 0700 | 0.22 | 0.103 | 0.103 | 9.71 | 9.71 | -28.0 | -28.0 | -24.8 | 38.7 | 42.5 | 16.0 |
| 890212 | 1300 | 0.25 | 0.318 | 0.318 | 3.15 | 3.15 | 58.0 | -28.0 | -0.2 | 55.2 | 45.6 | 70.6 |
| 890212 | 1900 | 0.75 | 0.230 | 0.250 | 4.35 | 4.01 | 44.0 | 50.0 | 25.7 | 37.9 | 34.6 | 33.0 |
| 890213 | 0100 | 1.09 | 0.191 | 0.191 | 5.24 | 5.24 | 20.0 | 20.0 | 20.8 | 35.1 | 33.4 | 29.2 |
| 890213 | 0700 | 1.01 | 0.171 | 0.171 | 5.83 | 5.83 | 8.0 | 10.0 | 11.1 | 34.8 | 34.6 | 27.2 |
| 890213 | 1300 | 0.74 | 0.191 | 0.191 | 5.24 | 5.24 | 34.0 | 14.0 | 7.2 | 45.0 | 41.5 | 38.8 |
| 890214 | 0700 | 0.75 | 0.142 | 0.142 | 7.04 | 7.04 | -16.0 | -26.0 | -26.0 | 39.2 | 34.9 | 38.4 |
| 890214 | 1300 | 0.67 | 0.152 | 0.162 | 6.58 | 6.19 | -22.0 | -26.0 | -29.1 | 39.5 | 34.9 | 42.2 |
| 890214 | 1900 | 0.58 | 0.142 | 0.142 | 7.04 | 7.04 | -28.0 | -30.0 | -34.9 | 34.8 | 29.1 | 30.6 |

(Continued)

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(Continued)

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IFS} deg | θ _{p,SW} deg | Δθ _{CS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890215 | 0100 | 0.60 | 0.152 | 0.152 | 6.58 | 6.58 | -26.0 | -28.0 | -33.1 | 34.6 | 31.2 | 30.5 |
| 890215 | 0700 | 0.52 | 0.152 | 0.152 | 6.58 | 6.58 | -24.0 | -26.0 | -29.2 | 31.1 | 30.0 | 26.8 |
| 890215 | 1300 | 0.46 | 0.162 | 0.103 | 6.19 | 9.71 | -26.0 | -26.0 | -29.7 | 33.5 | 29.9 | 25.9 |
| 890215 | 1900 | 0.50 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -40.0 | -37.3 | 35.0 | 25.6 | 30.8 |
| 890216 | 0100 | 0.50 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -26.0 | -36.3 | 36.4 | 29.1 | 27.5 |
| 890216 | 0700 | 0.61 | 0.308 | 0.308 | 3.25 | 3.25 | 22.0 | -26.0 | 5.1 | 71.0 | 42.1 | 35.5 |
| 890216 | 1000 | 1.06 | 0.220 | 0.250 | 4.54 | 4.01 | 4.0 | 6.0 | 8.7 | 34.0 | 31.0 | 28.6 |
| 890216 | 1300 | 1.45 | 0.201 | 0.191 | 4.98 | 5.24 | 0.0 | 6.0 | 6.5 | 34.1 | 32.2 | 28.4 |
| 890216 | 1600 | 1.68 | 0.181 | 0.181 | 5.52 | 5.52 | 10.0 | 10.0 | 12.9 | 35.3 | 32.3 | 28.7 |
| 890216 | 1900 | 1.79 | 0.171 | 0.162 | 5.83 | 6.19 | 4.0 | 8.0 | 11.6 | 35.1 | 33.3 | 30.3 |
| 890216 | 2200 | 1.55 | 0.162 | 0.162 | 6.19 | 6.19 | 0.0 | 10.0 | 10.0 | 34.9 | 33.0 | 30.9 |
| 890217 | 0100 | 1.59 | 0.191 | 0.181 | 5.24 | 5.52 | 10.0 | 6.0 | 12.4 | 36.5 | 34.0 | 28.8 |
| 890217 | 0400 | 1.84 | 0.171 | 0.162 | 5.83 | 6.19 | 8.0 | 6.0 | 11.5 | 37.4 | 35.6 | 29.4 |
| 890217 | 0700 | 2.07 | 0.152 | 0.152 | 6.58 | 6.58 | -2.0 | 4.0 | 8.3 | 38.2 | 36.6 | 41.7 |
| 890217 | 1000 | 2.25 | 0.142 | 0.132 | 7.04 | 7.56 | -4.0 | 0.0 | 4.2 | 37.4 | 37.2 | 33.8 |
| 890217 | 1300 | 2.25 | 0.132 | 0.132 | 7.56 | 7.56 | 12.0 | 4.0 | 6.8 | 38.3 | 38.2 | 40.6 |
| 890217 | 1600 | 1.99 | 0.181 | 0.132 | 5.52 | 7.56 | 4.0 | 8.0 | 13.3 | 41.4 | 39.3 | 33.3 |
| 890217 | 1900 | 1.82 | 0.162 | 0.152 | 6.19 | 6.58 | -2.0 | 6.0 | 10.0 | 42.9 | 37.9 | 37.5 |
| 890217 | 2200 | 1.72 | 0.181 | 0.171 | 5.52 | 5.83 | 4.0 | 2.0 | 7.9 | 40.9 | 37.3 | 31.6 |
| 890218 | 0100 | 2.10 | 0.171 | 0.171 | 5.83 | 5.83 | 4.0 | 8.0 | 3.8 | 38.9 | 37.2 | 31.7 |
| 890218 | 0400 | 2.55 | 0.152 | 0.152 | 6.58 | 6.58 | 4.0 | 4.0 | 8.4 | 41.5 | 40.0 | 40.1 |
| 890218 | 0700 | 2.59 | 0.152 | 0.142 | 6.58 | 7.04 | -2.0 | 0.0 | 2.8 | 38.8 | 37.0 | 34.2 |
| 890218 | 1000 | 2.74 | 0.142 | 0.132 | 7.04 | 7.56 | -6.0 | -6.0 | -3.6 | 38.7 | 37.4 | 32.9 |
| 890218 | 1300 | 2.88 | 0.132 | 0.132 | 7.56 | 7.56 | -8.0 | -4.0 | -2.3 | 37.5 | 37.4 | 39.2 |
| 890218 | 1600 | 3.06 | 0.132 | 0.132 | 7.56 | 7.56 | -4.0 | -4.0 | -4.0 | 40.6 | 40.0 | 46.5 |
| 890218 | 1900 | 3.19 | 0.123 | 0.123 | 8.16 | 8.16 | -4.0 | -4.0 | -1.7 | 39.7 | 39.5 | 40.7 |
| 890218 | 2200 | 3.05 | 0.113 | 0.113 | 8.87 | 8.87 | 2.0 | -8.0 | -1.9 | 39.6 | 39.4 | 41.1 |
| 890219 | 0100 | 2.93 | 0.113 | 0.103 | 8.87 | 9.71 | 10.0 | -6.0 | 0.2 | 40.3 | 40.2 | 38.6 |
| 890219 | 0400 | 2.88 | 0.103 | 0.103 | 9.71 | 9.71 | 4.0 | 2.0 | 3.9 | 43.2 | 42.0 | 42.6 |
| 890219 | 0700 | 2.53 | 0.103 | 0.103 | 9.71 | 9.71 | 6.0 | 2.0 | 5.8 | 41.8 | 39.8 | 41.7 |
| 890219 | 1000 | 2.21 | 0.103 | 0.103 | 9.71 | 9.71 | 10.0 | -6.0 | 4.2 | 39.3 | 39.5 | 41.6 |
| 890219 | 1300 | 1.96 | 0.113 | 0.103 | 8.87 | 9.71 | 0.0 | -2.0 | 0.2 | 37.2 | 37.3 | 36.6 |
| 890219 | 1600 | 1.82 | 0.093 | 0.093 | 10.72 | 10.72 | 8.0 | 2.0 | 3.5 | 39.1 | 38.8 | 40.0 |
| 890219 | 1900 | 1.67 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -4.0 | -1.9 | 39.9 | 39.5 | 38.9 |
| 890219 | 2200 | 1.55 | 0.093 | 0.093 | 10.72 | 10.72 | 10.0 | -10.0 | -0.7 | 38.1 | 38.3 | 41.1 |
| 890220 | 0100 | 1.53 | 0.103 | 0.103 | 9.71 | 9.71 | -8.0 | -12.0 | -3.3 | 38.0 | 38.0 | 40.0 |
| 890220 | 0400 | 1.39 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -10.0 | -3.3 | 37.3 | 37.4 | 37.8 |
| 890220 | 0700 | 1.23 | 0.103 | 0.103 | 9.71 | 9.71 | -4.0 | -10.0 | -3.5 | 39.2 | 39.3 | 42.5 |
| 890220 | 1000 | 1.13 | 0.103 | 0.103 | 9.71 | 9.71 | -4.0 | 4.0 | -0.6 | 40.0 | 39.8 | 40.1 |
| 890220 | 1300 | 1.05 | 0.103 | 0.103 | 9.71 | 9.71 | -10.0 | -12.0 | -7.8 | 37.8 | 37.8 | 37.9 |
| 890220 | 1900 | 0.90 | 0.103 | 0.103 | 9.71 | 9.71 | 12.0 | -14.0 | -2.7 | 39.3 | 39.6 | 41.4 |
| 890221 | 0100 | 0.76 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -14.0 | -6.5 | 36.8 | 35.5 | 38.6 |
| 890221 | 1300 | 1.12 | 0.318 | 0.113 | 3.15 | 8.87 | -46.0 | -44.0 | -23.2 | 41.4 | 32.0 | 18.5 |
| 890221 | 1600 | 0.91 | 0.123 | 0.123 | 8.16 | 8.16 | -4.0 | -24.0 | -14.3 | 44.2 | 37.8 | 41.7 |
| 890221 | 1900 | 0.85 | 0.113 | 0.123 | 8.87 | 8.16 | -16.0 | -24.0 | -15.7 | 43.7 | 38.8 | 43.8 |
| 890221 | 2200 | 0.81 | 0.113 | 0.113 | 8.87 | 8.87 | 16.0 | -26.0 | -16.1 | 44.3 | 38.5 | 43.5 |
| 890222 | 0100 | 0.84 | 0.113 | 0.113 | 8.87 | 8.87 | -14.0 | -24.0 | -14.0 | 43.1 | 38.9 | 41.9 |
| 890222 | 0400 | 0.92 | 0.113 | 0.113 | 8.87 | 8.87 | -12.0 | -24.0 | -14.6 | 42.6 | 38.7 | 44.2 |
| 890222 | 0700 | 0.89 | 0.123 | 0.113 | 8.16 | 8.87 | -20.0 | -24.0 | -21.0 | 43.3 | 39.6 | 44.0 |
| 890222 | 1300 | 0.69 | 0.103 | 0.113 | 9.71 | 8.87 | -16.0 | -22.0 | -10.3 | 43.5 | 41.4 | 43.7 |
| 890222 | 1600 | 0.95 | 0.250 | 0.113 | 4.01 | 8.87 | 56.0 | 54.0 | 23.8 | 66.6 | 35.8 | 17.9 |
| 890222 | 1900 | 1.21 | 0.230 | 0.230 | 4.35 | 4.35 | 48.0 | 50.0 | 29.5 | 57.0 | 37.0 | 25.9 |
| 890222 | 2200 | 1.34 | 0.240 | 0.220 | 4.17 | 4.54 | 48.0 | 48.0 | 29.3 | 44.6 | 36.0 | 25.0 |

(Continued)

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(Continued)

| Date | Time | H _{ms} | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|-----------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------------------|-------------------|
| | | | f _{p,FD} | f _{p,IFS} | T _{p,FD} | T _{p,IFS} | θ _{p,FD} | θ _{p,IDS} | θ _{p,SW} | Δθ _{IDS} | Δθ _{SW} | Δθ _{FDP} |
| | EST | m | Hz | Hz | sec | sec | deg | deg | deg | deg | deg | deg |
| 890223 | 0400 | 1.85 | 0.181 | 0.171 | 5.52 | 5.83 | 6.0 | 6.0 | 6.6 | 39.2 | 37.3 | 31.3 |
| 890223 | 0700 | 1.95 | 0.162 | 0.162 | 6.19 | 6.19 | 2.0 | 8.0 | 5.6 | 38.4 | 36.7 | 33.6 |
| 890223 | 1000 | 2.18 | 0.162 | 0.152 | 6.19 | 6.58 | 2.0 | 8.0 | 7.5 | 39.1 | 37.0 | 34.4 |
| 890223 | 1300 | 2.33 | 0.142 | 0.142 | 7.04 | 7.04 | -2.0 | 8.0 | 6.5 | 38.2 | 36.7 | 36.1 |
| 890223 | 1600 | 2.92 | 0.132 | 0.132 | 7.56 | 7.56 | 6.0 | 10.0 | 7.4 | 39.7 | 39.8 | 44.4 |
| 890223 | 1900 | 3.22 | 0.123 | 0.123 | 8.16 | 8.16 | 0.0 | 6.0 | 5.9 | 39.8 | 39.4 | 46.4 |
| 890223 | 2200 | 3.22 | 0.113 | 0.113 | 8.87 | 8.87 | 0.0 | 6.0 | 1.8 | 41.3 | 40.7 | 49.3 |
| 890224 | 0100 | 3.47 | 0.113 | 0.113 | 8.87 | 8.97 | 10.0 | 6.0 | 6.0 | 40.6 | 40.3 | 50.3 |
| 890224 | 0400 | 3.98 | 0.103 | 0.103 | 9.71 | 9.71 | 6.0 | 8.0 | 4.7 | 38.6 | 38.7 | 47.1 |
| 890224 | 0700 | 4.27 | 0.093 | 0.093 | 10.72 | 10.72 | 0.0 | 8.0 | 4.2 | 39.2 | 39.0 | 47.4 |
| 890224 | 1000 | 4.32 | 0.083 | 0.083 | 11.98 | 11.98 | -6.0 | 6.0 | 3.7 | 37.0 | 37.5 | 42.5 |
| 890224 | 1300 | 4.05 | 0.083 | 0.083 | 11.98 | 11.98 | -4.0 | 4.0 | 1.3 | 35.4 | 35.4 | 39.9 |
| 890224 | 1600 | 4.00 | 0.083 | 0.074 | 11.98 | 13.57 | 6.0 | 4.0 | -0.3 | 36.5 | 36.8 | 43.6 |
| 890224 | 1900 | 3.85 | 0.074 | 0.074 | 13.57 | 13.57 | -16.0 | 2.0 | -0.7 | 39.4 | 39.6 | 47.7 |
| 890224 | 2200 | 3.62 | 0.074 | 0.074 | 13.57 | 13.57 | -4.0 | 6.0 | 2.5 | 39.1 | 39.4 | 46.2 |
| 890225 | 0100 | 3.21 | 0.074 | 0.074 | 13.57 | 13.57 | 12.0 | 0.0 | 6.1 | 37.5 | 38.1 | 42.6 |
| 890225 | 0400 | 2.82 | 0.074 | 0.074 | 13.57 | 13.57 | 0.0 | 4.0 | 2.6 | 38.5 | 38.8 | 41.8 |
| 890225 | 0700 | 2.51 | 0.083 | 0.074 | 11.98 | 13.57 | -2.0 | 2.0 | 4.5 | 39.0 | 38.8 | 42.9 |
| 890225 | 1000 | 2.23 | 0.083 | 0.083 | 11.98 | 11.98 | -2.0 | 2.0 | 3.0 | 38.7 | 38.4 | 41.4 |
| 890225 | 1300 | 1.88 | 0.083 | 0.083 | 11.98 | 11.98 | -14.0 | 2.0 | 1.3 | 38.0 | 36.9 | 39.6 |
| 890225 | 1600 | 1.67 | 0.083 | 0.083 | 11.98 | 11.98 | 16.0 | 0.0 | 7.9 | 37.7 | 37.1 | 39.8 |
| 890225 | 1900 | 1.48 | 0.083 | 0.083 | 11.98 | 11.98 | -10.0 | 2.0 | 2.3 | 39.1 | 38.3 | 39.6 |
| 890225 | 2200 | 1.24 | 0.083 | 0.083 | 11.98 | 11.98 | -6.0 | 0.0 | 2.6 | 39.6 | 38.9 | 39.4 |
| 890226 | 0100 | 1.08 | 0.083 | 0.083 | 11.98 | 11.98 | 14.0 | 14.0 | 10.1 | 38.2 | 37.8 | 40.5 |
| 890226 | 0400 | 0.95 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -10.0 | -7.4 | 37.7 | 37.7 | 38.7 |
| 890226 | 0700 | 0.86 | 0.093 | 0.093 | 10.72 | 10.72 | 4.0 | 10.0 | 0.9 | 38.8 | 38.0 | 41.5 |
| 890226 | 1000 | 0.77 | 0.093 | 0.093 | 10.72 | 10.72 | 10.0 | -8.0 | -6.1 | 43.4 | 37.8 | 42.7 |
| 890226 | 1300 | 0.77 | 0.093 | 0.093 | 10.72 | 10.72 | 8.0 | -12.0 | -10.7 | 46.2 | 33.2 | 37.7 |
| 890226 | 1600 | 0.61 | 0.093 | 0.093 | 10.72 | 10.72 | 16.0 | -10.0 | -4.5 | 43.4 | 36.1 | 39.5 |
| 890226 | 1900 | 0.52 | 0.093 | 0.093 | 10.72 | 10.72 | -10.0 | -12.0 | -15.2 | 46.0 | 38.3 | 42.1 |
| 890226 | 2200 | 0.50 | 0.093 | 0.093 | 10.72 | 10.72 | 14.0 | -40.0 | -19.0 | 47.5 | 35.9 | 40.9 |
| 890227 | 0100 | 0.47 | 0.093 | 0.093 | 10.72 | 10.72 | 10.0 | -38.0 | -23.7 | 49.3 | 37.3 | 39.9 |
| 890227 | 0400 | 0.42 | 0.093 | 0.093 | 10.72 | 10.72 | -26.0 | -30.0 | -26.1 | 48.6 | 42.6 | 42.3 |
| 890227 | 0700 | 0.42 | 0.093 | 0.093 | 10.72 | 10.72 | 14.0 | 12.0 | -5.7 | 44.3 | 43.9 | 40.5 |
| 890227 | 1300 | 0.45 | 0.093 | 0.093 | 10.72 | 10.72 | -16.0 | 10.0 | -11.1 | 40.4 | 41.2 | 41.1 |
| 890227 | 1900 | 0.49 | 0.093 | 0.093 | 10.72 | 10.72 | -18.0 | -18.0 | -9.2 | 37.6 | 37.3 | 35.2 |
| 890228 | 0100 | 0.83 | 0.220 | 0.220 | 4.54 | 4.54 | 2.0 | -12.0 | -8.0 | 34.5 | 33.6 | 30.0 |
| 890228 | 0700 | 0.99 | 0.201 | 0.191 | 4.98 | 5.24 | -10.0 | -10.0 | -2.9 | 32.3 | 32.2 | 23.8 |
| 890228 | 1300 | 1.18 | 0.162 | 0.162 | 6.19 | 6.19 | -6.0 | -6.0 | 5.8 | 40.2 | 35.6 | 31.2 |
| 890228 | 1900 | 1.32 | 0.162 | 0.162 | 6.19 | 6.19 | 0.0 | -2.0 | 10.3 | 38.7 | 35.0 | 29.4 |
| 890301 | 0100 | 1.10 | 0.152 | 0.152 | 6.58 | 6.58 | -4.0 | 6.0 | 8.4 | 37.8 | 34.5 | 37.9 |
| 890301 | 0700 | 0.94 | 0.132 | 0.132 | 7.56 | 7.56 | 6.0 | 4.0 | 6.1 | 36.9 | 34.8 | 32.1 |
| 890301 | 1300 | 0.78 | 0.123 | 0.123 | 8.16 | 8.16 | -12.0 | 8.0 | -1.1 | 42.9 | 40.7 | 43.4 |
| 890301 | 1900 | 0.71 | 0.123 | 0.123 | 8.16 | 8.16 | 6.0 | 10.0 | 2.7 | 39.9 | 38.8 | 39.2 |
| 890302 | 0100 | 0.63 | 0.113 | 0.113 | 8.87 | 8.87 | 10.0 | 8.0 | 1.0 | 39.0 | 38.5 | 34.1 |
| 890302 | 0700 | 0.60 | 0.093 | 0.093 | 10.72 | 10.72 | -22.0 | -18.0 | -11.4 | 36.1 | 36.0 | 34.8 |
| 890302 | 1000 | 1.00 | 0.201 | 0.220 | 4.98 | 4.54 | 42.0 | 44.0 | 17.8 | 45.5 | 35.4 | 38.5 |
| 890302 | 1300 | 0.97 | 0.191 | 0.191 | 5.24 | 5.24 | 18.0 | 18.0 | 19.7 | 44.7 | 36.6 | 31.5 |
| 890302 | 1900 | 0.94 | 0.201 | 0.191 | 4.98 | 5.24 | -16.0 | -8.0 | -5.8 | 38.1 | 38.2 | 39.1 |
| 890303 | 0100 | 1.08 | 0.171 | 0.171 | 5.83 | 5.83 | -10.0 | -14.0 | -10.0 | 36.0 | 36.6 | 29.7 |
| 890303 | 0700 | 1.16 | 0.142 | 0.152 | 7.04 | 6.58 | -14.0 | -20.0 | -15.4 | 39.4 | 40.7 | 34.5 |
| 890303 | 1300 | 1.76 | 0.123 | 0.123 | 8.16 | 8.16 | -20.0 | -16.0 | -11.1 | 39.0 | 38.6 | 34.7 |
| 890303 | 1600 | 2.01 | 0.123 | 0.123 | 8.16 | 8.16 | -18.0 | -18.0 | -12.1 | 38.6 | 38.2 | 35.4 |

(Continued)

(Sheet 14 of 30)

(Continued)

| Date | Time | H _{ms} | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|-----------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------------------|-------------------|
| | | | f _{p,FD} | f _{p,IFS} | T _{p,FD} | T _{p,IFS} | θ _{p,FD} | θ _{p,IDS} | θ _{p,SW} | Δθ _{IDS} | Δθ _{SW} | Δθ _{IDE} |
| | EST | m | Hz | Hz | sec | sec | deg | deg | deg | deg | deg | deg |
| 890303 | 1900 | 2.10 | 0.113 | 0.113 | 8.87 | 8.87 | -12.0 | -14.0 | -9.4 | 35.9 | 36.5 | 34.9 |
| 890304 | 0100 | 1.89 | 0.103 | 0.103 | 9.71 | 9.71 | -16.0 | -12.0 | -11.0 | 37.9 | 38.8 | 34.7 |
| 890304 | 0700 | 1.74 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | -12.0 | 2.0 | 39.7 | 38.7 | 37.5 |
| 890304 | 1300 | 2.11 | 0.093 | 0.093 | 10.72 | 10.72 | 0.0 | -2.0 | 0.1 | 38.8 | 39.0 | 43.1 |
| 890304 | 1600 | 2.02 | 0.074 | 0.074 | 13.57 | 13.57 | -4.0 | -2.0 | 1.6 | 39.7 | 39.6 | 39.8 |
| 890304 | 1900 | 1.84 | 0.093 | 0.093 | 10.72 | 10.72 | 10.0 | 10.0 | 7.9 | 39.1 | 38.6 | 38.3 |
| 890305 | 0100 | 1.73 | 0.074 | 0.074 | 13.57 | 13.57 | -8.0 | 2.0 | 4.0 | 39.5 | 38.6 | 41.6 |
| 890305 | 0700 | 1.39 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | 10.0 | 5.7 | 42.7 | 40.2 | 41.8 |
| 890305 | 1300 | 1.51 | 0.083 | 0.083 | 11.98 | 11.98 | 10.0 | -6.0 | 0.6 | 39.9 | 39.4 | 41.1 |
| 890305 | 1900 | 1.21 | 0.083 | 0.083 | 11.98 | 11.98 | -12.0 | 12.0 | 1.0 | 39.3 | 39.5 | 36.4 |
| 890306 | 0100 | 0.91 | 0.083 | 0.083 | 11.98 | 11.98 | -8.0 | -8.0 | 2.0 | 37.7 | 37.6 | 34.3 |
| 890306 | 0700 | 0.70 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -12.0 | -7.9 | 43.7 | 41.2 | 37.9 |
| 890306 | 1300 | 0.82 | 0.230 | 0.103 | 4.35 | 9.71 | 44.0 | 42.0 | 22.5 | 50.6 | 31.7 | 15.7 |
| 890306 | 1900 | 1.78 | 0.152 | 0.152 | 6.58 | 6.58 | 0.0 | 4.0 | 13.7 | 42.4 | 43.7 | 48.8 |
| 890307 | 0100 | 2.16 | 0.123 | 0.123 | 8.16 | 8.16 | 0.0 | 2.0 | 7.6 | 39.2 | 38.7 | 38.6 |
| 890307 | 0400 | 2.49 | 0.103 | 0.103 | 9.71 | 9.71 | 6.0 | 8.0 | 10.2 | 39.9 | 37.6 | 37.9 |
| 890307 | 0700 | 3.16 | 0.103 | 0.103 | 9.71 | 9.71 | -6.0 | 10.0 | 7.5 | 38.7 | 37.2 | 42.5 |
| 890307 | 1000 | 3.43 | 0.093 | 0.093 | 10.72 | 10.72 | 4.0 | 8.0 | 4.5 | 37.1 | 36.7 | 44.2 |
| 890307 | 1300 | 3.64 | 0.093 | 0.093 | 10.72 | 10.72 | 4.0 | 4.0 | 3.7 | 36.8 | 37.2 | 40.1 |
| 890307 | 1600 | 3.98 | 0.083 | 0.083 | 11.98 | 11.98 | -2.0 | 2.0 | 0.4 | 37.3 | 37.3 | 41.3 |
| 890307 | 1900 | 4.22 | 0.083 | 0.083 | 11.98 | 11.98 | -2.0 | 4.0 | 0.9 | 38.6 | 38.4 | 40.3 |
| 890307 | 2200 | 4.10 | 0.083 | 0.083 | 11.98 | 11.98 | -2.0 | 0.0 | -2.0 | 36.2 | 36.4 | 42.5 |
| 890308 | 0100 | 3.91 | 0.083 | 0.083 | 11.98 | 11.98 | -8.0 | 0.0 | -2.2 | 34.7 | 34.8 | 41.7 |
| 890308 | 0400 | 4.13 | 0.093 | 0.093 | 10.72 | 10.72 | -2.0 | -2.0 | -1.0 | 37.4 | 37.5 | 40.1 |
| 890308 | 0700 | 4.23 | 0.083 | 0.083 | 11.98 | 11.98 | -6.0 | 0.0 | 1.8 | 39.9 | 39.8 | 41.8 |
| 890308 | 1000 | 3.95 | 0.083 | 0.083 | 11.98 | 11.98 | 2.0 | 0.0 | -2.6 | 37.7 | 37.9 | 41.8 |
| 890308 | 1300 | 3.75 | 0.093 | 0.093 | 10.72 | 10.72 | -18.0 | -6.0 | -6.4 | 38.0 | 37.9 | 44.3 |
| 890308 | 1600 | 4.11 | 0.093 | 0.093 | 10.72 | 10.72 | -2.0 | 0.0 | 0.7 | 39.5 | 39.3 | 42.2 |
| 890308 | 1900 | 4.22 | 0.093 | 0.093 | 10.72 | 10.72 | 2.0 | -2.0 | -0.1 | 40.8 | 40.9 | 47.0 |
| 890308 | 2200 | 4.02 | 0.083 | 0.083 | 11.98 | 11.98 | -2.0 | -4.0 | 0.2 | 38.7 | 38.8 | 43.5 |
| 890309 | 0100 | 3.87 | 0.083 | 0.083 | 11.98 | 11.98 | -14.0 | 0.0 | 0.7 | 37.6 | 37.5 | 44.0 |
| 890309 | 0400 | 4.11 | 0.093 | 0.083 | 10.72 | 11.98 | 8.0 | -6.0 | -2.3 | 38.5 | 38.7 | 38.7 |
| 890309 | 0700 | 4.17 | 0.083 | 0.083 | 11.98 | 11.98 | 2.0 | 2.0 | 2.3 | 41.9 | 42.0 | 45.4 |
| 890309 | 1000 | 3.99 | 0.083 | 0.083 | 11.98 | 11.98 | 0.0 | -2.0 | 3.9 | 39.3 | 39.2 | 41.5 |
| 890309 | 1300 | 3.64 | 0.083 | 0.083 | 11.98 | 11.98 | 0.0 | 2.0 | 2.5 | 38.7 | 38.9 | 43.4 |
| 890309 | 1600 | 3.70 | 0.083 | 0.083 | 11.98 | 11.98 | 2.0 | 0.0 | 1.8 | 39.1 | 38.9 | 42.8 |
| 890309 | 1900 | 3.54 | 0.103 | 0.074 | 9.71 | 13.57 | 8.0 | 0.0 | 4.5 | 41.1 | 40.3 | 41.4 |
| 890309 | 2200 | 3.24 | 0.093 | 0.083 | 10.72 | 11.98 | -10.0 | -2.0 | 1.7 | 39.9 | 39.2 | 39.9 |
| 890310 | 0100 | 3.05 | 0.083 | 0.083 | 11.98 | 11.98 | 16.0 | 0.0 | 6.8 | 39.1 | 39.0 | 41.6 |
| 890310 | 0400 | 3.07 | 0.093 | 0.083 | 10.72 | 11.98 | -14.0 | -2.0 | -1.6 | 37.8 | 38.3 | 36.1 |
| 890310 | 0700 | 3.05 | 0.083 | 0.083 | 11.98 | 11.98 | 12.0 | 0.0 | 7.4 | 40.6 | 40.3 | 42.1 |
| 890310 | 1000 | 3.21 | 0.132 | 0.083 | 7.56 | 11.98 | -2.0 | 4.0 | 4.8 | 40.2 | 40.1 | 32.3 |
| 890310 | 1300 | 3.08 | 0.103 | 0.093 | 9.71 | 10.72 | 0.0 | 0.0 | 2.5 | 38.8 | 39.4 | 43.3 |
| 890310 | 1600 | 3.21 | 0.103 | 0.093 | 9.71 | 10.72 | 2.0 | 8.0 | 2.6 | 38.3 | 38.1 | 39.9 |
| 890310 | 1900 | 3.09 | 0.123 | 0.103 | 8.16 | 9.71 | 6.0 | 0.0 | 1.7 | 40.9 | 41.1 | 39.0 |
| 890310 | 2200 | 2.83 | 0.083 | 0.083 | 11.98 | 11.98 | -12.0 | -2.0 | 3.9 | 41.8 | 40.2 | 41.6 |
| 890311 | 0100 | 2.65 | 0.083 | 0.083 | 11.98 | 11.98 | 10.0 | -2.0 | 5.0 | 39.2 | 38.8 | 41.0 |
| 890311 | 0400 | 2.50 | 0.083 | 0.083 | 11.98 | 11.98 | 10.0 | -2.0 | 1.7 | 38.3 | 38.5 | 41.6 |
| 890311 | 0700 | 2.34 | 0.083 | 0.083 | 11.98 | 11.98 | 10.0 | -4.0 | 3.1 | 40.3 | 40.2 | 41.9 |
| 890311 | 1000 | 2.08 | 0.083 | 0.083 | 11.98 | 11.98 | 12.0 | -4.0 | 3.7 | 40.9 | 40.9 | 42.2 |
| 890311 | 1300 | 1.86 | 0.083 | 0.083 | 11.98 | 11.98 | 10.0 | -4.0 | 1.6 | 39.3 | 39.1 | 40.1 |
| 890311 | 1600 | 1.74 | 0.093 | 0.093 | 10.72 | 10.72 | 2.0 | -8.0 | 0.8 | 38.5 | 38.3 | 40.8 |
| 890311 | 1900 | 1.64 | 0.083 | 0.093 | 11.98 | 10.72 | 4.0 | -10.0 | -0.9 | 40.9 | 40.8 | 40.8 |

(Continued)

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(Continued)

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890311 | 2200 | 1.60 | 0.093 | 0.093 | 10.72 | 10.72 | 8.0 | -12.0 | 1.6 | 42.0 | 41.9 | 39.7 |
| 890312 | 0100 | 1.45 | 0.093 | 0.093 | 10.72 | 10.72 | 8.0 | 6.0 | 3.6 | 39.9 | 39.9 | 37.5 |
| 890312 | 0400 | 1.43 | 0.093 | 0.093 | 10.72 | 10.72 | 18.0 | -10.0 | -0.1 | 29.5 | 39.1 | 42.1 |
| 890312 | 0700 | 1.32 | 0.093 | 0.093 | 10.72 | 10.72 | -14.0 | -12.0 | -7.2 | 38.0 | 37.7 | 35.9 |
| 890312 | 1000 | 1.19 | 0.093 | 0.093 | 10.72 | 10.72 | -6.0 | -8.0 | -1.4 | 40.2 | 39.4 | 38.0 |
| 890312 | 1300 | 1.08 | 0.093 | 0.083 | 10.72 | 11.98 | 6.0 | 8.0 | 1.4 | 39.5 | 39.1 | 37.4 |
| 890312 | 1600 | 1.06 | 0.093 | 0.093 | 10.72 | 10.72 | -14.0 | -12.0 | -1.7 | 38.8 | 37.6 | 38.0 |
| 890312 | 1900 | 1.23 | 0.093 | 0.093 | 10.72 | 10.72 | 14.0 | 20.0 | 10.2 | 43.5 | 37.0 | 42.3 |
| 890312 | 2200 | 1.72 | 0.181 | 0.181 | 5.52 | 5.52 | 0.0 | 2.0 | 4.5 | 35.9 | 35.5 | 29.8 |
| 890313 | 0100 | 1.66 | 0.152 | 0.152 | 6.58 | 6.58 | -4.0 | 2.0 | 2.5 | 37.2 | 37.5 | 38.5 |
| 890313 | 0400 | 1.46 | 0.162 | 0.093 | 6.19 | 10.72 | -2.0 | 0.0 | 3.2 | 35.9 | 36.1 | 31.2 |
| 890313 | 0700 | 1.34 | 0.142 | 0.093 | 7.04 | 10.72 | -4.0 | 2.0 | 3.9 | 36.8 | 36.8 | 31.2 |
| 890313 | 1300 | 1.13 | 0.093 | 0.093 | 10.72 | 10.72 | -14.0 | 0.0 | 7.9 | 40.1 | 38.2 | 38.6 |
| 890313 | 1900 | 1.27 | 0.103 | 0.103 | 9.71 | 9.71 | -12.0 | -8.0 | -0.7 | 35.6 | 35.3 | 36.3 |
| 890314 | 0100 | 1.22 | 0.201 | 0.201 | 4.98 | 4.98 | 28.0 | -10.0 | 7.2 | 43.2 | 42.5 | 42.3 |
| 890314 | 0700 | 1.36 | 0.132 | 0.132 | 7.56 | 7.56 | -14.0 | -16.0 | -8.2 | 42.0 | 40.1 | 37.5 |
| 890314 | 1300 | 1.04 | 0.113 | 0.132 | 8.87 | 7.56 | 8.0 | -6.0 | -0.6 | 38.7 | 37.4 | 38.9 |
| 890314 | 1900 | 0.97 | 0.123 | 0.123 | 8.16 | 8.16 | 2.0 | -6.0 | -0.3 | 37.7 | 36.9 | 39.2 |
| 890315 | 0100 | 0.78 | 0.132 | 0.123 | 7.56 | 8.16 | -18.0 | -14.0 | -5.1 | 40.8 | 41.6 | 37.4 |
| 890315 | 0700 | 0.65 | 0.113 | 0.123 | 8.87 | 8.16 | -8.0 | -14.0 | -9.1 | 42.0 | 40.0 | 36.8 |
| 890315 | 1300 | 0.68 | 0.113 | 0.113 | 8.87 | 8.87 | 4.0 | -32.0 | -21.8 | 43.7 | 36.5 | 38.8 |
| 890316 | 0100 | 0.60 | 0.132 | 0.113 | 7.56 | 8.87 | 4.0 | -34.0 | -16.2 | 46.9 | 35.3 | 47.9 |
| 890316 | 0700 | 0.55 | 0.113 | 0.113 | 8.87 | 8.87 | -28.0 | -42.0 | -7.8 | 64.1 | 44.8 | 42.6 |
| 890316 | 1300 | 0.88 | 0.201 | 0.201 | 4.98 | 4.98 | 26.0 | 28.0 | 15.1 | 38.0 | 34.1 | 33.5 |
| 890316 | 1900 | 0.81 | 0.171 | 0.171 | 5.83 | 5.83 | -4.0 | 2.0 | 8.6 | 35.1 | 33.1 | 28.0 |
| 890317 | 0100 | 0.67 | 0.191 | 0.191 | 5.24 | 5.24 | 20.0 | 2.0 | 7.4 | 40.6 | 37.8 | 40.7 |
| 890317 | 0700 | 0.55 | 0.142 | 0.132 | 7.04 | 7.56 | -6.0 | -8.0 | -7.7 | 35.4 | 36.6 | 25.6 |
| 890317 | 1300 | 0.53 | 0.123 | 0.123 | 8.16 | 8.16 | -16.0 | -18.0 | -21.3 | 37.5 | 36.4 | 33.8 |
| 890317 | 1600 | 0.52 | 0.123 | 0.113 | 8.16 | 8.87 | -2.0 | -6.0 | -20.4 | 38.4 | 36.4 | 37.5 |
| 890317 | 1900 | 0.48 | 0.162 | 0.113 | 6.19 | 8.87 | -14.0 | -12.0 | -17.1 | 38.5 | 36.0 | 24.8 |
| 890317 | 2200 | 0.46 | 0.123 | 0.123 | 8.16 | 8.16 | 4.0 | -20.0 | -20.1 | 35.6 | 33.5 | 35.9 |
| 890318 | 0100 | 0.51 | 0.132 | 0.123 | 7.56 | 8.16 | -26.0 | -24.0 | -17.9 | 37.0 | 33.7 | 29.0 |
| 890318 | 0400 | 0.61 | 0.201 | 0.201 | 4.98 | 4.98 | -26.0 | -28.0 | -23.3 | 35.4 | 33.3 | 35.0 |
| 890318 | 0700 | 0.60 | 0.191 | 0.191 | 5.24 | 5.24 | -30.0 | -28.0 | -21.6 | 35.7 | 31.6 | 30.0 |
| 890318 | 1000 | 0.55 | 0.191 | 0.191 | 5.24 | 5.24 | -28.0 | -26.0 | -26.7 | 32.6 | 30.3 | 27.5 |
| 890318 | 1300 | 0.48 | 0.191 | 0.191 | 5.24 | 5.24 | -24.0 | -24.0 | -29.4 | 31.9 | 29.4 | 24.2 |
| 890318 | 1600 | 0.44 | 0.123 | 0.113 | 8.16 | 8.87 | -24.0 | -56.0 | -35.4 | 36.2 | 30.7 | 34.2 |
| 890318 | 1900 | 0.38 | 0.123 | 0.113 | 8.16 | 8.87 | -26.0 | -28.0 | -34.5 | 38.7 | 28.3 | 30.1 |
| 890318 | 2200 | 0.37 | 0.123 | 0.123 | 8.16 | 8.16 | -22.0 | -26.0 | -35.6 | 38.8 | 27.6 | 24.4 |
| 890319 | 0100 | 0.39 | 0.123 | 0.123 | 8.16 | 8.16 | -22.0 | -20.0 | -31.3 | 39.2 | 36.0 | 30.4 |
| 890319 | 0400 | 1.63 | 0.191 | 0.191 | 5.24 | 5.24 | 26.0 | 40.0 | 35.9 | 34.2 | 38.5 | 33.8 |
| 890319 | 0700 | 1.91 | 0.162 | 0.162 | 6.19 | 6.19 | 8.0 | 16.0 | 24.6 | 34.8 | 33.0 | 29.2 |
| 890319 | 1000 | 1.73 | 0.152 | 0.152 | 6.58 | 6.58 | 4.0 | 16.0 | 20.5 | 34.6 | 31.4 | 32.9 |
| 890319 | 1300 | 1.50 | 0.162 | 0.142 | 6.19 | 7.04 | 4.0 | 14.0 | 18.4 | 36.6 | 32.1 | 30.5 |
| 890319 | 1600 | 1.41 | 0.132 | 0.132 | 7.56 | 7.56 | 12.0 | 12.0 | 18.0 | 38.5 | 35.7 | 38.9 |
| 890319 | 1900 | 1.24 | 0.123 | 0.123 | 8.16 | 8.16 | 6.0 | 6.0 | 11.9 | 38.9 | 37.4 | 44.1 |
| 890319 | 2200 | 1.09 | 0.132 | 0.132 | 7.56 | 7.56 | 12.0 | 8.0 | 18.3 | 40.0 | 36.4 | 38.9 |
| 890320 | 0100 | 1.03 | 0.132 | 0.142 | 7.56 | 7.04 | 8.0 | 8.0 | 14.6 | 44.2 | 41.4 | 37.0 |
| 890320 | 0400 | 1.02 | 0.132 | 0.132 | 7.56 | 7.56 | -12.0 | 6.0 | 10.0 | 44.6 | 42.5 | 40.7 |
| 890320 | 0700 | 0.91 | 0.142 | 0.142 | 7.04 | 7.04 | 10.0 | 4.0 | 13.0 | 42.9 | 40.4 | 36.8 |
| 890320 | 1000 | 0.78 | 0.142 | 0.142 | 7.04 | 7.04 | 2.0 | 28.0 | 14.2 | 41.0 | 37.9 | 35.6 |
| 890320 | 1300 | 0.78 | 0.123 | 0.123 | 8.16 | 8.16 | 0.0 | 18.0 | 6.9 | 38.2 | 36.7 | 32.2 |

(Continued)

(Sheet 16 of 30)

(Continued)

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890320 | 1900 | 0.74 | 0.123 | 0.123 | 8.16 | 8.16 | -2.0 | -12.0 | -1.8 | 42.2 | 42.0 | 38.3 |
| 890321 | 0100 | 0.74 | 0.220 | 0.113 | 4.54 | 8.87 | -30.0 | -18.0 | -19.6 | 44.5 | 34.4 | 26.3 |
| 890321 | 0700 | 0.92 | 0.142 | 0.142 | 7.04 | 7.04 | -36.0 | -32.0 | -28.7 | 38.2 | 34.0 | 36.3 |
| 890321 | 1300 | 0.74 | 0.142 | 0.142 | 7.04 | 7.04 | -18.0 | -26.0 | -0.3 | 51.0 | 42.9 | 33.8 |
| 890321 | 1900 | 0.98 | 0.230 | 0.230 | 4.35 | 4.35 | 50.0 | 52.0 | 32.2 | 66.6 | 39.7 | 38.6 |
| 890322 | 0100 | 1.33 | 0.240 | 0.171 | 4.17 | 5.83 | 50.0 | 8.0 | 10.3 | 40.5 | 37.8 | 40.8 |
| 890322 | 0700 | 1.76 | 0.162 | 0.171 | 6.19 | 5.83 | -2.0 | 6.0 | 10.7 | 37.3 | 35.7 | 30.5 |
| 890322 | 1000 | 1.94 | 0.162 | 0.162 | 6.19 | 6.19 | -2.0 | 8.0 | 8.3 | 37.8 | 36.1 | 36.6 |
| 890322 | 1300 | 1.93 | 0.152 | 0.152 | 6.58 | 6.58 | -2.0 | 6.0 | 5.8 | 36.8 | 35.6 | 33.7 |
| 890322 | 1600 | 1.94 | 0.152 | 0.142 | 6.58 | 7.04 | 6.0 | 2.0 | 3.7 | 43.6 | 46.5 | 54.7 |
| 890322 | 1900 | 1.85 | 0.162 | 0.152 | 6.19 | 6.58 | -4.0 | -4.0 | 6.3 | 37.9 | 37.6 | 35.7 |
| 890323 | 0100 | 1.91 | 0.142 | 0.142 | 7.04 | 7.04 | -10.0 | 2.0 | 6.1 | 37.0 | 36.1 | 35.8 |
| 890323 | 0400 | 2.10 | 0.152 | 0.152 | 6.58 | 6.58 | 0.0 | 0.0 | 8.1 | 37.9 | 37.6 | 36.5 |
| 890323 | 0700 | 2.24 | 0.142 | 0.142 | 7.04 | 7.04 | -6.0 | 2.0 | 4.5 | 39.3 | 38.9 | 38.3 |
| 890323 | 1000 | 2.11 | 0.142 | 0.142 | 7.04 | 7.04 | -8.0 | 2.0 | 5.6 | 38.7 | 37.5 | 35.0 |
| 890323 | 1300 | 2.32 | 0.142 | 0.142 | 7.04 | 7.04 | -8.0 | -4.0 | 1.1 | 39.1 | 38.3 | 34.2 |
| 890323 | 1600 | 2.52 | 0.142 | 0.142 | 7.04 | 7.04 | -12.0 | -4.0 | -2.2 | 39.3 | 38.9 | 39.4 |
| 890323 | 1900 | 2.53 | 0.113 | 0.123 | 8.87 | 8.16 | 2.0 | -6.0 | -1.9 | 42.5 | 42.3 | 40.9 |
| 890323 | 2200 | 2.37 | 0.103 | 0.103 | 9.71 | 9.71 | 0.0 | -14.0 | -10.1 | 42.0 | 41.8 | 40.6 |
| 890324 | 0100 | 2.31 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | -14.0 | -2.2 | 38.3 | 38.4 | 37.5 |
| 890324 | 0400 | 2.21 | 0.103 | 0.103 | 9.71 | 9.71 | 10.0 | -14.0 | -2.5 | 40.8 | 40.6 | 40.6 |
| 890324 | 0700 | 2.10 | 0.103 | 0.103 | 9.71 | 9.71 | 10.0 | -14.0 | -4.0 | 41.3 | 40.9 | 42.3 |
| 890324 | 1000 | 1.90 | 0.103 | 0.103 | 9.71 | 9.71 | -4.0 | -8.0 | -4.7 | 46.0 | 43.5 | 43.6 |
| 890324 | 1300 | 1.87 | 0.103 | 0.103 | 9.71 | 9.71 | -6.0 | -14.0 | -3.7 | 42.4 | 41.5 | 43.1 |
| 890324 | 1900 | 1.45 | 0.113 | 0.113 | 8.87 | 8.87 | -4.0 | -12.0 | 1.0 | 43.4 | 43.0 | 42.9 |
| 890325 | 0100 | 1.04 | 0.103 | 0.113 | 9.71 | 8.87 | 12.0 | 12.0 | 7.9 | 46.5 | 43.9 | 40.0 |
| 890325 | 0700 | 0.92 | 0.103 | 0.103 | 9.71 | 9.71 | 10.0 | 10.0 | 12.7 | 45.6 | 41.8 | 40.8 |
| 890325 | 1000 | 0.95 | 0.093 | 0.093 | 10.72 | 10.72 | 2.0 | 16.0 | 7.3 | 44.0 | 41.7 | 39.2 |
| 890325 | 1300 | 0.92 | 0.093 | 0.093 | 10.72 | 10.72 | 14.0 | 14.0 | 16.4 | 40.6 | 38.2 | 36.4 |
| 890325 | 1900 | 0.70 | 0.103 | 0.103 | 9.71 | 9.71 | 4.0 | 22.0 | 13.9 | 46.3 | 44.5 | 38.1 |
| 890326 | 0100 | 0.58 | 0.103 | 0.113 | 9.71 | 8.87 | -6.0 | 22.0 | 11.8 | 41.6 | 41.1 | 32.8 |
| 890326 | 0700 | 0.57 | 0.113 | 0.113 | 8.87 | 8.87 | 6.0 | 18.0 | 6.2 | 42.0 | 42.2 | 35.6 |
| 890326 | 1300 | 0.50 | 0.103 | 0.113 | 9.71 | 8.87 | -4.0 | 18.0 | 3.7 | 43.1 | 43.3 | 33.0 |
| 890326 | 1900 | 0.55 | 0.132 | 0.093 | 7.56 | 10.72 | 8.0 | 4.0 | -2.8 | 40.9 | 40.9 | 34.5 |
| 890327 | 0100 | 0.59 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -10.0 | -1.2 | 40.9 | 40.6 | 38.2 |
| 890327 | 0700 | 0.63 | 0.103 | 0.103 | 9.71 | 9.71 | -18.0 | 6.0 | 3.3 | 41.9 | 38.2 | 37.4 |
| 890327 | 1300 | 0.61 | 0.113 | 0.103 | 8.87 | 9.71 | 6.0 | 6.0 | 2.8 | 39.1 | 37.6 | 37.8 |
| 890327 | 1600 | 0.58 | 0.103 | 0.103 | 9.71 | 9.71 | -18.0 | -14.0 | -6.2 | 39.1 | 40.8 | 33.8 |
| 890327 | 1900 | 0.55 | 0.113 | 0.113 | 8.87 | 8.87 | -22.0 | 2.0 | -11.8 | 40.8 | 40.3 | 37.2 |
| 890328 | 0100 | 0.48 | 0.113 | 0.113 | 8.87 | 8.87 | 2.0 | 10.0 | -0.2 | 42.2 | 41.1 | 39.4 |
| 890328 | 0700 | 0.44 | 0.113 | 0.113 | 8.87 | 8.87 | -18.0 | -18.0 | -21.2 | 44.2 | 37.8 | 34.0 |
| 890328 | 1000 | 0.44 | 0.113 | 0.113 | 8.87 | 8.87 | -22.0 | -42.0 | -30.6 | 44.7 | 35.3 | 30.7 |
| 890328 | 1300 | 0.42 | 0.191 | 0.113 | 5.24 | 8.87 | -40.0 | -40.0 | -22.7 | 47.6 | 34.1 | 27.0 |
| 890328 | 1900 | 0.39 | 0.318 | 0.113 | 3.15 | 8.87 | -62.0 | -60.0 | -31.0 | 43.6 | 26.2 | 10.4 |
| 890329 | 0100 | 0.33 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -28.0 | -25.7 | 37.7 | 31.1 | 36.4 |
| 890329 | 0700 | 0.37 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -23.0 | -26.4 | 34.6 | 28.8 | 30.4 |
| 890329 | 1300 | 0.39 | 0.113 | 0.083 | 8.87 | 11.98 | -18.0 | -60.0 | -33.6 | 39.9 | 28.5 | 22.8 |
| 890329 | 1600 | 0.40 | 0.103 | 0.113 | 9.71 | 8.87 | -18.0 | -56.0 | -36.5 | 37.8 | 22.6 | 25.1 |
| 890329 | 1900 | 0.42 | 0.308 | 0.074 | 3.25 | 13.57 | -50.0 | -50.0 | -35.0 | 36.5 | 20.2 | 11.7 |
| 890330 | 0100 | 0.42 | 0.318 | 0.074 | 3.15 | 13.57 | -56.0 | -58.0 | -37.5 | 37.7 | 24.4 | 26.7 |
| 890330 | 0700 | 0.37 | 0.123 | 0.123 | 8.16 | 8.16 | -26.0 | -26.0 | -33.9 | 37.3 | 30.2 | 24.1 |

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(Continued)

| Date | Time | H ₃₀ m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890330 | 1300 | 0.56 | 0.308 | 0.318 | 3.25 | 3.15 | -50.0 | -48.0 | -35.2 | 32.7 | 26.9 | 17.0 |
| 890330 | 1600 | 0.59 | 0.269 | 0.123 | 3.72 | 8.16 | -50.0 | -50.0 | -35.4 | 31.9 | 26.8 | 16.3 |
| 890330 | 1900 | 0.64 | 0.142 | 0.142 | 7.04 | 7.04 | -38.0 | -48.0 | -34.2 | 33.9 | 28.5 | 27.2 |
| 890330 | 2200 | 0.64 | 0.132 | 0.132 | 7.56 | 7.56 | -14.0 | -44.0 | -25.4 | 44.1 | 34.9 | 44.7 |
| 890331 | 0100 | 0.67 | 0.132 | 0.132 | 7.56 | 7.56 | -14.0 | -34.0 | -19.1 | 47.9 | 38.9 | 46.3 |
| 890331 | 0400 | 0.68 | 0.123 | 0.123 | 8.16 | 8.16 | -20.0 | -26.0 | -23.4 | 45.2 | 40.5 | 44.0 |
| 890331 | 0700 | 0.70 | 0.123 | 0.123 | 8.16 | 8.16 | -24.0 | -30.0 | -25.0 | 45.7 | 39.5 | 43.6 |
| 890331 | 1000 | 0.76 | 0.113 | 0.132 | 8.87 | 7.56 | -22.0 | -30.0 | -15.0 | 47.8 | 40.5 | 44.7 |
| 890331 | 1300 | 0.84 | 0.308 | 0.113 | 3.25 | 8.87 | -64.0 | -36.0 | -25.7 | 44.2 | 35.8 | 21.6 |
| 890331 | 1600 | 1.02 | 0.318 | 0.113 | 3.15 | 8.87 | -62.0 | -44.0 | -33.5 | 36.5 | 30.1 | 16.5 |
| 890331 | 1900 | 0.77 | 0.123 | 0.123 | 8.16 | 8.16 | 22.0 | -32.0 | -20.5 | 45.9 | 38.4 | 45.7 |
| 890401 | 0100 | 1.07 | 0.210 | 0.210 | 4.75 | 4.75 | 46.0 | 44.0 | 33.6 | 53.8 | 34.5 | 21.0 |
| 890401 | 0400 | 1.06 | 0.171 | 0.171 | 5.83 | 5.83 | 38.0 | 42.0 | 37.9 | 49.9 | 39.3 | 52.1 |
| 890401 | 0700 | 0.82 | 0.181 | 0.171 | 5.52 | 5.83 | 38.0 | 42.0 | 27.3 | 50.7 | 39.6 | 49.6 |
| 890401 | 1000 | 0.76 | 0.191 | 0.171 | 5.24 | 5.83 | 40.0 | 40.0 | 28.9 | 49.0 | 39.3 | 48.8 |
| 890401 | 1300 | 0.76 | 0.191 | 0.123 | 5.24 | 8.16 | 38.0 | 40.0 | 29.2 | 47.0 | 38.7 | 31.8 |
| 890401 | 1600 | 0.77 | 0.191 | 0.181 | 5.24 | 5.52 | 38.0 | 40.0 | 30.9 | 45.4 | 35.0 | 37.1 |
| 890401 | 1900 | 0.65 | 0.210 | 0.210 | 4.75 | 4.75 | 38.0 | 38.0 | 28.7 | 47.7 | 31.0 | 17.5 |
| 890401 | 2200 | 0.55 | 0.210 | 0.123 | 4.75 | 8.16 | 42.0 | 40.0 | 24.4 | 58.0 | 34.7 | 18.2 |
| 890402 | 0100 | 0.45 | 0.220 | 0.132 | 4.54 | 7.56 | 42.0 | 40.0 | 17.6 | 57.7 | 41.0 | 20.9 |
| 890402 | 0400 | 0.62 | 0.240 | 0.318 | 4.17 | 3.15 | 46.0 | 42.0 | 33.8 | 43.1 | 30.8 | 18.6 |
| 890402 | 0700 | 0.60 | 0.220 | 0.220 | 4.54 | 4.54 | 36.0 | 40.0 | 37.2 | 44.2 | 31.6 | 25.3 |
| 890402 | 1000 | 0.64 | 0.210 | 0.201 | 4.75 | 4.98 | 36.0 | 34.0 | 28.3 | 39.8 | 34.3 | 27.3 |
| 890402 | 1300 | 0.59 | 0.210 | 0.191 | 4.75 | 5.24 | 46.0 | 14.0 | 23.3 | 44.8 | 35.9 | 36.0 |
| 890402 | 1600 | 0.52 | 0.201 | 0.201 | 4.98 | 4.98 | 38.0 | 36.0 | 10.8 | 56.4 | 36.4 | 24.6 |
| 890402 | 1900 | 0.45 | 0.142 | 0.132 | 7.04 | 7.56 | -6.0 | -14.0 | 0.6 | 53.3 | 40.0 | 33.4 |
| 890402 | 2200 | 0.44 | 0.142 | 0.152 | 7.04 | 6.58 | -12.0 | -14.0 | -9.9 | 44.9 | 43.1 | 31.8 |
| 890403 | 0100 | 0.47 | 0.181 | 0.171 | 5.52 | 5.83 | 10.0 | -12.0 | -9.4 | 43.4 | 41.1 | 30.6 |
| 890403 | 0400 | 0.46 | 0.064 | 0.191 | 15.62 | 5.24 | -14.0 | -10.0 | -24.5 | 55.6 | 48.4 | 23.3 |
| 890403 | 0700 | 0.39 | 0.181 | 0.123 | 5.52 | 8.16 | -52.0 | -14.0 | -32.4 | 51.9 | 41.8 | 61.2 |
| 890403 | 1300 | 0.54 | 0.318 | 0.181 | 3.15 | 5.52 | -58.0 | -60.0 | -39.8 | 41.9 | 26.2 | 11.8 |
| 890403 | 1900 | 0.66 | 0.142 | 0.142 | 7.04 | 7.04 | -34.0 | -42.0 | -34.5 | 33.4 | 26.7 | 28.8 |
| 890404 | 0100 | 0.68 | 0.113 | 0.113 | 8.87 | 8.87 | -26.0 | -32.0 | -32.5 | 36.5 | 31.2 | 35.5 |
| 890404 | 0700 | 0.70 | 0.142 | 0.142 | 7.04 | 7.04 | -36.0 | -34.0 | -32.7 | 32.8 | 28.5 | 24.6 |
| 890404 | 1300 | 0.80 | 0.142 | 0.142 | 7.04 | 7.04 | -30.0 | -36.0 | -34.6 | 31.5 | 26.4 | 24.4 |
| 890404 | 1900 | 0.76 | 0.318 | 0.103 | 3.15 | 9.71 | -62.0 | -30.0 | -35.9 | 34.1 | 26.4 | 16.8 |
| 890405 | 0100 | 0.74 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -28.0 | -31.0 | 33.7 | 27.8 | 30.4 |
| 890405 | 1300 | 0.77 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -28.0 | -28.8 | 34.3 | 29.5 | 32.7 |
| 890405 | 1900 | 0.80 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -32.0 | -30.7 | 37.5 | 33.8 | 43.3 |
| 890406 | 0100 | 0.88 | 0.250 | 0.132 | 4.01 | 7.56 | 56.0 | -26.0 | 0.9 | 64.3 | 44.5 | 21.0 |
| 890406 | 0700 | 1.52 | 0.191 | 0.191 | 5.24 | 5.24 | 36.0 | 46.0 | 21.6 | 61.5 | 43.5 | 55.1 |
| 890406 | 1300 | 1.09 | 0.113 | 0.113 | 8.87 | 8.87 | -18.0 | 8.0 | 3.6 | 45.3 | 36.8 | 37.4 |
| 890406 | 1900 | 0.79 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -22.0 | 3.8 | 51.4 | 41.2 | 41.8 |
| 890407 | 0100 | 0.57 | 0.103 | 0.103 | 9.71 | 9.71 | -20.0 | -22.0 | -19.4 | 40.2 | 40.3 | 39.9 |
| 890407 | 0700 | 0.54 | 0.113 | 0.103 | 8.87 | 9.71 | -24.0 | -22.0 | -16.9 | 41.7 | 40.4 | 39.0 |
| 890407 | 1300 | 0.60 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -40.0 | -27.0 | 39.4 | 30.6 | 37.6 |
| 890407 | 1900 | 1.33 | 0.308 | 0.113 | 3.25 | 8.87 | 46.0 | 46.0 | 16.7 | 68.8 | 44.5 | 24.8 |
| 890407 | 2200 | 1.72 | 0.152 | 0.152 | 6.58 | 6.58 | 2.0 | 18.0 | 12.2 | 40.4 | 35.2 | 37.8 |
| 890408 | 0100 | 1.38 | 0.142 | 0.142 | 7.04 | 7.04 | -2.0 | 10.0 | 8.9 | 36.7 | 33.1 | 31.7 |
| 890408 | 0700 | 0.93 | 0.142 | 0.132 | 7.04 | 7.56 | -10.0 | -10.0 | -0.4 | 44.3 | 41.9 | 38.2 |
| 890408 | 1300 | 0.70 | 0.123 | 0.123 | 8.16 | 8.16 | 6.0 | 8.0 | 11.3 | 42.3 | 40.6 | 35.2 |
| 890408 | 1900 | 0.73 | 0.123 | 0.123 | 8.16 | 8.16 | 6.0 | 12.0 | 7.0 | 52.7 | 48.5 | 46.0 |

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(Continued)

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890409 | 0100 | 0.61 | 0.123 | 0.113 | 8.16 | 8.87 | 6.0 | 6.0 | -6.3 | 56.3 | 42.9 | 45.5 |
| 890409 | 0700 | 0.44 | 0.318 | 0.132 | 3.15 | 7.56 | 54.0 | 14.0 | 11.1 | 50.7 | 44.3 | 43.2 |
| 890409 | 1300 | 0.45 | 0.123 | 0.113 | 8.16 | 8.87 | -26.0 | -28.0 | -16.2 | 46.7 | 45.5 | 46.5 |
| 890409 | 1900 | 0.51 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | -24.0 | -27.9 | 40.5 | 37.8 | 36.4 |
| 890410 | 0100 | 0.45 | 0.103 | 0.103 | 9.71 | 9.71 | -18.0 | -22.0 | -20.0 | 40.4 | 39.3 | 38.3 |
| 890410 | 0700 | 0.52 | 0.113 | 0.113 | 8.87 | 8.87 | -8.0 | -14.0 | -14.2 | 38.4 | 36.8 | 36.6 |
| 890410 | 1300 | 0.49 | 0.113 | 0.103 | 8.87 | 9.71 | -22.0 | -22.0 | -16.6 | 39.1 | 37.5 | 38.2 |
| 890410 | 1900 | 0.72 | 0.308 | 0.103 | 3.25 | 9.71 | 58.0 | 58.0 | 17.5 | 65.0 | 32.5 | 30.1 |
| 890411 | 0100 | 1.79 | 0.191 | 0.201 | 5.24 | 4.98 | 12.0 | 12.0 | 16.9 | 37.8 | 35.5 | 36.8 |
| 890411 | 0400 | 2.26 | 0.152 | 0.152 | 6.58 | 6.58 | 2.0 | 6.0 | 11.5 | 35.4 | 34.7 | 34.2 |
| 890411 | 0700 | 2.19 | 0.162 | 0.152 | 6.19 | 6.58 | 4.0 | 10.0 | 9.2 | 35.7 | 34.3 | 33.6 |
| 890411 | 1000 | 2.06 | 0.162 | 0.162 | 6.19 | 6.19 | 4.0 | 6.0 | 8.6 | 37.0 | 36.1 | 35.2 |
| 890411 | 1300 | 1.90 | 0.152 | 0.152 | 6.58 | 6.58 | 0.0 | 10.0 | 12.2 | 36.9 | 34.1 | 32.8 |
| 890411 | 1300 | 1.52 | 0.113 | 0.113 | 8.87 | 8.87 | 8.0 | 0.0 | 2.7 | 35.6 | 35.6 | 36.5 |
| 890412 | 0100 | 1.35 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | -2.0 | 3.2 | 35.9 | 34.9 | 37.0 |
| 890412 | 0700 | 1.61 | 0.113 | 0.113 | 8.87 | 8.87 | 4.0 | 0.0 | 1.9 | 34.5 | 33.7 | 37.3 |
| 890412 | 1300 | 1.54 | 0.113 | 0.113 | 8.87 | 8.87 | 4.0 | -4.0 | 2.5 | 37.4 | 35.9 | 37.6 |
| 890412 | 1600 | 1.53 | 0.113 | 0.113 | 8.87 | 8.87 | -20.0 | 0.0 | -3.1 | 35.7 | 34.1 | 36.0 |
| 890412 | 1900 | 1.51 | 0.113 | 0.103 | 8.87 | 9.71 | -4.0 | -6.0 | -1.8 | 38.2 | 37.4 | 39.7 |
| 890413 | 0100 | 1.71 | 0.113 | 0.113 | 8.87 | 8.87 | 2.0 | -10.0 | -1.0 | 40.5 | 38.8 | 40.6 |
| 890413 | 0700 | 1.83 | 0.123 | 0.123 | 8.16 | 8.16 | 0.0 | -2.0 | -3.0 | 36.4 | 36.8 | 37.1 |
| 890413 | 1300 | 1.52 | 0.113 | 0.113 | 8.87 | 8.87 | 6.0 | -10.0 | -1.3 | 40.1 | 40.2 | 41.4 |
| 890413 | 1900 | 1.42 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | 2.0 | -2.7 | 33.0 | 33.1 | 33.4 |
| 890414 | 0100 | 1.28 | 0.123 | 0.113 | 8.16 | 8.87 | 10.0 | -10.0 | 0.4 | 35.4 | 36.1 | 32.4 |
| 890414 | 0700 | 1.19 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -12.0 | -3.9 | 33.7 | 34.5 | 30.7 |
| 890414 | 1300 | 1.06 | 0.093 | 0.093 | 10.72 | 10.72 | 4.0 | -12.0 | -5.3 | 43.9 | 43.5 | 44.5 |
| 890414 | 1900 | 0.92 | 0.093 | 0.093 | 10.72 | 10.72 | 2.0 | 2.0 | 1.0 | 41.4 | 41.2 | 41.3 |
| 890415 | 0100 | 0.90 | 0.103 | 0.103 | 9.71 | 9.71 | 14.0 | -16.0 | -8.1 | 40.8 | 40.5 | 42.9 |
| 890415 | 0700 | 0.93 | 0.103 | 0.103 | 9.71 | 9.71 | 6.0 | -36.0 | -19.9 | 42.4 | 33.0 | 41.1 |
| 890415 | 1300 | 1.78 | 0.123 | 0.123 | 8.16 | 8.16 | -24.0 | -26.0 | -19.0 | 39.8 | 37.5 | 41.1 |
| 890415 | 1600 | 1.72 | 0.103 | 0.103 | 9.71 | 9.71 | -18.0 | -22.0 | -12.2 | 40.2 | 39.1 | 43.5 |
| 890415 | 1900 | 1.70 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -20.0 | -14.0 | 38.7 | 38.1 | 39.8 |
| 890416 | 0100 | 1.54 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -20.0 | -8.1 | 43.9 | 41.1 | 42.6 |
| 890416 | 0700 | 1.24 | 0.093 | 0.093 | 10.72 | 10.72 | -4.0 | -16.0 | -3.9 | 46.6 | 41.9 | 46.1 |
| 890416 | 1300 | 1.18 | 0.103 | 0.103 | 9.71 | 9.71 | 6.0 | -16.0 | 3.2 | 44.4 | 43.5 | 44.4 |
| 890416 | 1900 | 1.02 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -12.0 | -1.4 | 46.7 | 43.0 | 43.5 |
| 890417 | 0100 | 1.05 | 0.113 | 0.113 | 8.87 | 8.87 | 2.0 | -14.0 | 8.0 | 43.1 | 42.2 | 41.1 |
| 890417 | 0700 | 0.94 | 0.113 | 0.113 | 8.87 | 8.87 | -14.0 | 16.0 | 3.0 | 43.3 | 42.6 | 41.2 |
| 890417 | 1300 | 0.93 | 0.093 | 0.103 | 10.72 | 9.71 | -10.0 | 18.0 | -1.8 | 44.0 | 43.3 | 37.0 |
| 890417 | 1900 | 0.81 | 0.093 | 0.103 | 10.72 | 9.71 | 2.0 | -14.0 | -5.8 | 42.9 | 40.2 | 39.4 |
| 890418 | 0100 | 0.63 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -14.0 | -12.1 | 41.0 | 37.6 | 38.5 |
| 890418 | 0700 | 0.51 | 0.093 | 0.093 | 10.72 | 10.72 | -4.0 | -16.0 | -12.4 | 44.4 | 41.6 | 47.8 |
| 890418 | 1300 | 0.51 | 0.103 | 0.103 | 9.71 | 9.71 | -12.0 | -18.0 | -12.7 | 42.8 | 37.8 | 39.8 |
| 890418 | 1900 | 0.53 | 0.103 | 0.103 | 9.71 | 9.71 | 12.0 | -44.0 | -12.2 | 52.6 | 35.6 | 40.9 |
| 890419 | 0100 | 0.48 | 0.103 | 0.103 | 9.71 | 9.71 | -10.0 | -20.0 | -21.5 | 47.8 | 34.5 | 38.9 |
| 890419 | 0700 | 0.50 | 0.093 | 0.093 | 10.72 | 10.72 | 0.0 | -44.0 | -16.6 | 52.5 | 37.6 | 37.9 |
| 890419 | 1300 | 1.30 | 0.220 | 0.220 | 4.54 | 4.54 | 40.0 | 40.0 | 28.8 | 33.0 | 31.7 | 24.8 |
| 890419 | 1600 | 1.41 | 0.201 | 0.191 | 4.98 | 5.24 | -4.0 | 40.0 | 25.2 | 39.4 | 38.2 | 39.1 |
| 890419 | 1900 | 1.15 | 0.171 | 0.171 | 5.83 | 5.83 | 0.0 | 10.0 | 13.8 | 40.5 | 39.3 | 32.7 |
| 890419 | 2200 | 1.06 | 0.162 | 0.162 | 6.19 | 6.19 | -2.0 | 10.0 | 11.1 | 39.5 | 38.4 | 34.9 |

(Continued)

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(Continued)

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890420 | 0100 | 1.00 | 0.171 | 0.093 | 5.83 | 10.72 | 26.0 | 12.0 | 8.8 | 39.1 | 38.0 | 30.3 |
| 890420 | 0400 | 0.96 | 0.083 | 0.083 | 11.98 | 11.98 | -6.0 | 0.0 | 5.6 | 39.4 | 40.2 | 37.0 |
| 890420 | 0700 | 1.00 | 0.083 | 0.083 | 11.98 | 11.98 | 12.0 | 18.0 | 4.5 | 39.0 | 37.4 | 36.4 |
| 890420 | 1000 | 1.05 | 0.083 | 0.083 | 11.98 | 11.98 | 16.0 | 20.0 | 4.2 | 38.9 | 35.5 | 37.1 |
| 890420 | 1300 | 1.12 | 0.259 | 0.083 | 3.86 | 11.98 | 14.0 | 14.0 | 5.0 | 40.0 | 36.5 | 34.0 |
| 890420 | 1600 | 1.20 | 0.259 | 0.083 | 3.86 | 11.98 | 8.0 | 8.0 | 5.5 | 40.8 | 36.8 | 32.2 |
| 890420 | 1900 | 1.14 | 0.142 | 0.083 | 7.04 | 11.98 | 0.0 | 8.0 | -0.8 | 37.6 | 36.4 | 36.7 |
| 890420 | 2200 | 1.06 | 0.074 | 0.074 | 13.57 | 13.57 | 2.0 | 6.0 | -1.5 | 37.1 | 36.9 | 39.4 |
| 890421 | 0100 | 1.06 | 0.074 | 0.074 | 13.57 | 13.57 | 18.0 | -12.0 | -4.4 | 36.7 | 36.3 | 40.6 |
| 890421 | 0400 | 1.11 | 0.074 | 0.074 | 13.57 | 13.57 | 2.0 | -18.0 | -3.1 | 38.1 | 37.7 | 41.5 |
| 890421 | 1300 | 1.13 | 0.074 | 0.083 | 13.57 | 11.98 | -12.0 | -16.0 | -8.5 | 34.9 | 34.4 | 33.3 |
| 890421 | 1900 | 1.05 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -14.0 | -8.6 | 37.6 | 36.8 | 38.8 |
| 890422 | 0100 | 0.96 | 0.074 | 0.074 | 13.57 | 13.57 | -4.0 | -10.0 | -5.1 | 35.9 | 35.7 | 38.0 |
| 890422 | 0700 | 0.92 | 0.083 | 0.083 | 11.98 | 11.98 | -14.0 | -12.0 | -7.5 | 36.4 | 36.4 | 37.1 |
| 890422 | 1300 | 0.75 | 0.083 | 0.083 | 11.98 | 11.98 | 10.0 | 2.0 | -0.8 | 39.6 | 38.0 | 39.0 |
| 890422 | 1900 | 0.78 | 0.308 | 0.083 | 3.25 | 11.98 | 4.0 | 4.0 | 1.6 | 38.0 | 36.9 | 20.7 |
| 890423 | 0100 | 0.77 | 0.132 | 0.132 | 7.56 | 7.56 | -12.0 | -6.0 | 0.9 | 40.0 | 37.9 | 34.4 |
| 890423 | 0700 | 1.26 | 0.279 | 0.220 | 3.59 | 4.54 | 10.0 | 10.0 | 10.8 | 37.8 | 34.1 | 32.1 |
| 890423 | 1300 | 1.19 | 0.181 | 0.181 | 5.52 | 5.52 | 34.0 | 2.0 | 11.3 | 37.3 | 36.1 | 33.4 |
| 890423 | 1900 | 0.88 | 0.113 | 0.113 | 8.87 | 8.87 | -14.0 | 4.0 | 3.5 | 39.8 | 39.2 | 37.1 |
| 890424 | 0100 | 0.69 | 0.113 | 0.103 | 8.87 | 9.71 | 6.0 | -14.0 | -2.8 | 37.3 | 37.8 | 34.8 |
| 890424 | 0700 | 0.60 | 0.113 | 0.113 | 8.87 | 8.87 | -12.0 | -16.0 | -6.3 | 40.3 | 40.4 | 38.1 |
| 890425 | 0100 | 0.37 | 0.103 | 0.103 | 9.71 | 9.71 | -18.0 | -20.0 | -27.1 | 36.8 | 37.7 | 34.2 |
| 890425 | 0700 | 0.45 | 0.123 | 0.103 | 8.16 | 9.71 | -26.0 | 14.0 | -15.6 | 45.7 | 45.2 | 21.7 |
| 890425 | 1300 | 0.39 | 0.083 | 0.083 | 11.98 | 11.98 | -16.0 | -26.0 | -23.7 | 35.4 | 34.1 | 25.1 |
| 890425 | 1600 | 0.39 | 0.132 | 0.083 | 7.56 | 11.98 | -26.0 | -26.0 | -24.1 | 32.7 | 30.2 | 19.1 |
| 890425 | 1900 | 0.38 | 0.083 | 0.083 | 11.98 | 11.98 | -8.0 | -26.0 | -27.3 | 35.5 | 29.1 | 27.0 |
| 890426 | 0100 | 0.34 | 0.093 | 0.083 | 10.72 | 11.98 | -10.0 | -24.0 | -26.3 | 36.9 | 30.1 | 28.8 |
| 890426 | 0700 | 0.34 | 0.083 | 0.083 | 11.98 | 11.98 | -8.0 | -10.0 | -18.0 | 32.5 | 31.0 | 26.5 |
| 890426 | 1000 | 0.32 | 0.083 | 0.083 | 11.98 | 11.98 | -14.0 | -18.0 | -16.5 | 32.1 | 31.0 | 28.6 |
| 890426 | 1300 | 0.30 | 0.171 | 0.093 | 5.83 | 10.72 | -2.0 | -2.0 | -11.8 | 34.0 | 34.7 | 26.5 |
| 890426 | 1900 | 0.31 | 0.181 | 0.093 | 5.32 | 10.72 | -2.0 | -2.0 | -9.7 | 29.4 | 29.7 | 23.8 |
| 890427 | 0100 | 0.30 | 0.093 | 0.093 | 10.72 | 10.72 | -4 | 0.0 | -7.8 | 32.1 | 31.5 | 28.4 |
| 890427 | 0700 | 0.32 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | 0.0 | -8.7 | 32.5 | 31.4 | 29.0 |
| 890427 | 1300 | 0.34 | 0.181 | 0.181 | 5.52 | 5.52 | -10.0 | -4.0 | -11.0 | 34.4 | 32.8 | 22.2 |
| 890428 | 0100 | 0.32 | 0.123 | 0.103 | 8.16 | 9.71 | -24.0 | -22.0 | -4.2 | 34.9 | 34.7 | 25.2 |
| 890428 | 0700 | 1.11 | 0.210 | 0.210 | 4.75 | 4.75 | 42.0 | 42.0 | 37.4 | 24.9 | 25.3 | 23.4 |
| 890428 | 1000 | 1.33 | 0.171 | 0.171 | 5.83 | 5.83 | 28.0 | 28.0 | 31.3 | 21.5 | 19.9 | 12.4 |
| 890428 | 1300 | 1.33 | 0.142 | 0.142 | 7.04 | 7.04 | 20.0 | 22.0 | 21.1 | 21.5 | 20.1 | 17.3 |
| 890428 | 1900 | 0.89 | 0.132 | 0.132 | 7.56 | 7.56 | 10.0 | 20.0 | 20.6 | 22.4 | 20.5 | 15.2 |
| 890429 | 0100 | 0.79 | 0.142 | 0.142 | 7.04 | 7.04 | 10.0 | 16.0 | 12.1 | 24.2 | 21.8 | 14.2 |
| 890429 | 0700 | 0.61 | 0.162 | 0.162 | 6.19 | 6.19 | 20.0 | 20.0 | 14.1 | 26.1 | 23.3 | 16.2 |
| 890430 | 0100 | 0.85 | 0.162 | 0.162 | 6.19 | 6.19 | -32.0 | -54.0 | -42.6 | 37.0 | 33.7 | 30.3 |
| 890430 | 0700 | 0.59 | 0.162 | 0.162 | 6.19 | 6.19 | -54.0 | -52.0 | -48.9 | 34.7 | 27.4 | 27.0 |
| 890430 | 1300 | 0.57 | 0.181 | 0.171 | 5.52 | 5.83 | -54.0 | -54.0 | -35.4 | 40.6 | 27.3 | 18.4 |
| 890430 | 1900 | 0.43 | 0.171 | 0.171 | 5.83 | 5.83 | -46.0 | -48.0 | -30.6 | 44.6 | 28.5 | 17.1 |
| 890501 | 0100 | 0.42 | 0.201 | 0.201 | 4.98 | 4.98 | -56.0 | -56.0 | -36.2 | 43.7 | 31.7 | 22.3 |
| 890501 | 1300 | 0.34 | 0.113 | 0.123 | 8.87 | 8.16 | -16.0 | -20.0 | -32.2 | 38.0 | 27.9 | 30.0 |
| 890501 | 1900 | 0.51 | 0.162 | 0.162 | 6.19 | 6.19 | -52.0 | -52.0 | -42.9 | 31.5 | 29.0 | 22.9 |
| 890501 | 2200 | 0.42 | 0.171 | 0.162 | 5.83 | 6.19 | -46.0 | -46.0 | -41.6 | 29.8 | 24.6 | 19.1 |

(Continued)

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(Continued)

| Date | Time | R ₅₀ m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890502 | 0100 | 0.50 | 0.250 | 0.250 | 4.01 | 4.01 | -58.0 | -50.0 | -46.8 | 25.1 | 20.2 | 16.9 |
| 890502 | 1300 | 0.54 | 0.142 | 0.132 | 7.04 | 7.56 | -42.0 | -38.0 | -44.1 | 28.9 | 23.6 | 18.3 |
| 890502 | 1900 | 0.56 | 0.162 | 0.132 | 6.19 | 7.56 | -48.0 | -46.0 | -37.3 | 27.8 | 25.2 | 14.3 |
| 890503 | 0100 | 0.49 | 0.132 | 0.132 | 7.56 | 7.56 | -44.0 | -46.0 | -35.8 | 30.0 | 26.6 | 20.8 |
| 890503 | 0700 | 0.36 | 0.123 | 0.132 | 8.16 | 7.56 | -28.0 | -46.0 | -28.4 | 35.1 | 27.7 | 22.6 |
| 890503 | 1300 | 0.43 | 0.132 | 0.132 | 7.56 | 7.56 | -30.0 | -30.0 | -23.5 | 34.7 | 31.8 | 23.9 |
| 890503 | 1900 | 0.39 | 0.132 | 0.132 | 7.56 | 7.56 | -30.0 | -42.0 | -23.8 | 37.4 | 30.7 | 28.7 |
| 890504 | 0100 | 0.41 | 0.074 | 0.074 | 13.57 | 13.57 | -22.0 | -18.0 | -17.7 | 26.5 | 27.0 | 25.1 |
| 890504 | 0700 | 0.42 | 0.132 | 0.074 | 7.56 | 13.57 | -30.0 | -28.0 | -22.2 | 28.0 | 26.2 | 17.1 |
| 890504 | 1900 | 0.40 | 0.074 | 0.074 | 13.57 | 13.57 | -18.0 | -18.0 | -26.7 | 28.5 | 27.0 | 27.5 |
| 890505 | 0100 | 0.39 | 0.083 | 0.074 | 11.98 | 13.57 | -14.0 | -18.0 | -18.6 | 25.4 | 24.9 | 21.8 |
| 890505 | 0700 | 0.43 | 0.083 | 0.074 | 11.98 | 13.57 | -18.0 | -18.0 | -30.5 | 30.3 | 27.2 | 24.1 |
| 890505 | 1300 | 0.73 | 0.250 | 0.210 | 4.01 | 4.75 | -60.0 | -34.0 | -43.2 | 26.6 | 21.7 | 21.2 |
| 890505 | 1600 | 0.78 | 0.201 | 0.191 | 4.98 | 5.24 | -54.0 | -54.0 | -46.5 | 27.2 | 21.6 | 21.2 |
| 890505 | 1900 | 0.81 | 0.181 | 0.171 | 5.52 | 5.83 | -54.0 | -54.0 | -43.9 | 25.6 | 20.3 | 20.3 |
| 890505 | 2200 | 0.90 | 0.171 | 0.152 | 5.83 | 6.38 | -48.0 | -48.0 | -45.8 | 19.6 | 15.9 | 11.8 |
| 890506 | 0100 | 1.01 | 0.152 | 0.152 | 6.58 | 6.58 | -46.0 | -36.0 | -41.7 | 19.9 | 17.0 | 16.2 |
| 890506 | 0400 | 0.98 | 0.152 | 0.142 | 6.58 | 7.04 | -44.0 | -44.0 | -36.7 | 22.3 | 19.0 | 15.3 |
| 890506 | 0700 | 0.82 | 0.142 | 0.142 | 7.04 | 7.04 | -44.0 | -46.0 | -39.1 | 30.2 | 24.5 | 20.8 |
| 890506 | 1300 | 0.76 | 0.142 | 0.123 | 7.04 | 8.16 | -26.0 | -26.0 | -33.0 | 29.5 | 25.3 | 23.2 |
| 890506 | 1900 | 0.78 | 0.142 | 0.123 | 7.04 | 8.16 | -32.0 | -32.0 | -32.6 | 31.5 | 22.6 | 14.8 |
| 890507 | 0100 | 0.52 | 0.142 | 0.123 | 7.04 | 8.16 | -30.0 | -30.0 | -20.4 | 40.2 | 30.5 | 26.6 |
| 890507 | 0700 | 0.51 | 0.132 | 0.132 | 7.56 | 7.56 | -28.0 | -28.0 | -13.5 | 38.1 | 34.5 | 24.9 |
| 890507 | 1300 | 0.50 | 0.123 | 0.123 | 8.16 | 8.16 | -18.0 | -18.0 | -21.0 | 33.2 | 30.2 | 23.4 |
| 890507 | 1900 | 0.44 | 0.132 | 0.123 | 7.56 | 8.16 | -24.0 | -14.0 | -16.8 | 34.5 | 30.6 | 23.8 |
| 890508 | 0100 | 0.41 | 0.093 | 0.093 | 10.72 | 10.72 | -2.0 | -14.0 | -13.5 | 33.2 | 30.2 | 26.3 |
| 890508 | 0700 | 0.44 | 0.093 | 0.093 | 10.72 | 10.72 | -10.0 | -12.0 | -14.5 | 32.3 | 30.1 | 27.9 |
| 890508 | 1300 | 0.43 | 0.093 | 0.093 | 10.72 | 10.72 | 10.0 | -8.0 | -7.4 | 27.6 | 22.1 | 19.4 |
| 890508 | 1900 | 0.46 | 0.103 | 0.103 | 9.71 | 9.71 | 6.0 | 0.0 | -16.1 | 33.6 | 23.3 | 20.0 |
| 890509 | 0100 | 0.43 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | -2.0 | -16.3 | 30.5 | 23.2 | 22.6 |
| 890509 | 0700 | 0.44 | 0.123 | 0.103 | 8.16 | 9.71 | -16.0 | -14.0 | -10.9 | 31.2 | 28.0 | 27.2 |
| 890509 | 1900 | 0.49 | 0.142 | 0.142 | 7.04 | 7.04 | -22.0 | -22.0 | -16.9 | 28.3 | 26.3 | 24.9 |
| 890510 | 0100 | 0.76 | 0.162 | 0.162 | 6.19 | 6.19 | -42.0 | -44.0 | -39.0 | 20.9 | 16.3 | 9.8 |
| 890510 | 0700 | 0.87 | 0.123 | 0.123 | 8.16 | 8.16 | -38.0 | -38.0 | -40.5 | 18.3 | 16.8 | 15.5 |
| 890510 | 1600 | 0.81 | 0.123 | 0.123 | 8.16 | 8.16 | -38.0 | -40.0 | -39.1 | 26.1 | 23.1 | 23.1 |
| 890513 | 0100 | 0.45 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | -2.0 | -4.8 | 30.6 | 33.2 | 22.8 |
| 890513 | 0700 | 0.54 | 0.103 | 0.093 | 9.71 | 10.72 | 2.0 | 0.0 | -5.0 | 24.0 | 25.7 | 18.4 |
| 890513 | 1900 | 0.56 | 0.093 | 0.093 | 10.72 | 10.72 | 6.0 | 0.0 | -7.6 | 27.0 | 27.2 | 23.1 |
| 890514 | 0100 | 0.58 | 0.093 | 0.093 | 10.72 | 10.72 | -10.0 | -4.0 | -8.7 | 25.7 | 26.1 | 23.7 |
| 890514 | 0700 | 0.62 | 0.103 | 0.093 | 9.71 | 10.72 | 2.0 | 2.0 | -6.1 | 25.9 | 25.6 | 18.1 |
| 890514 | 1300 | 0.37 | 0.093 | 0.093 | 10.72 | 10.72 | 0.0 | 0.0 | -16.1 | 39.1 | 24.9 | 21.0 |
| 890514 | 1900 | 0.44 | 0.093 | 0.093 | 10.72 | 10.72 | 0.0 | 2.0 | -12.4 | 39.0 | 25.5 | 26.1 |
| 890515 | 0100 | 0.44 | 0.103 | 0.103 | 9.71 | 9.71 | 12.0 | 12.0 | -14.4 | 37.1 | 26.9 | 24.7 |
| 890515 | 0700 | 0.46 | 0.191 | 0.113 | 5.24 | 8.87 | -44.0 | -48.0 | -23.3 | 48.0 | 22.8 | 10.6 |
| 890515 | 1300 | 0.50 | 0.191 | 0.191 | 5.24 | 5.24 | -50.0 | -50.0 | -32.7 | 39.9 | 21.7 | 14.6 |
| 890515 | 1900 | 0.44 | 0.142 | 0.103 | 7.04 | 9.71 | -30.0 | -28.0 | -26.5 | 37.4 | 28.8 | 31.2 |
| 890516 | 0100 | 0.48 | 0.181 | 0.181 | 5.52 | 5.52 | -50.0 | -48.0 | -32.0 | 40.4 | 26.1 | 19.6 |
| 890516 | 0700 | 0.42 | 0.181 | 0.181 | 5.52 | 5.52 | -50.0 | -50.0 | -27.6 | 48.5 | 36.2 | 30.3 |
| 890516 | 1300 | 0.37 | 0.064 | 0.064 | 15.62 | 15.62 | -8.0 | -48.0 | -21.6 | 46.8 | 37.8 | 18.8 |

(Continued)

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(Continued)

| Date | Time | H _{ms} | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|-----------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------------------|------------------|
| | | | f _{p,FD} | f _{p,IFS} | T _{p,FD} | T _{p,IFS} | θ _{p,FD} | θ _{p,IDS} | θ _{p,SW} | Δθ _{IDS} | Δθ _{SW} | Δθ _{FD} |
| | EST | m | Hz | Hz | sec | sec | deg | deg | deg | deg | deg | deg |
| 890516 | 1900 | 0.37 | 0.250 | 0.064 | 4.01 | 15.62 | 50.0 | 50.0 | -13.8 | 51.6 | 30.6 | 6.4 |
| 890517 | 0100 | 0.30 | 0.064 | 0.064 | 15.62 | 15.62 | -8.0 | -8.0 | -7.8 | 38.5 | 31.0 | 20.7 |
| 890517 | 0700 | 0.30 | 0.064 | 0.064 | 15.62 | 15.62 | -10.0 | -10.0 | 1.9 | 43.2 | 31.5 | 22.2 |
| 890517 | 1300 | 0.71 | 0.220 | 0.210 | 4.54 | 4.75 | 46.0 | 44.0 | 33.1 | 18.1 | 13.8 | 9.7 |
| 890517 | 1900 | 0.99 | 0.181 | 0.181 | 5.52 | 5.52 | 30.0 | 32.0 | 26.6 | 12.9 | 10.7 | 8.3 |
| 890518 | 0100 | 0.79 | 0.171 | 0.162 | 5.83 | 6.19 | 32.0 | 32.0 | 22.8 | 20.9 | 15.5 | 12.5 |
| 890518 | 0700 | 0.87 | 0.103 | 0.132 | 9.71 | 7.56 | 2.0 | 20.0 | 12.1 | 22.5 | 15.1 | 13.1 |
| 890518 | 1300 | 1.26 | 0.093 | 0.093 | 10.72 | 10.72 | 0.0 | 4.0 | 4.3 | 19.2 | 17.5 | 16.8 |
| 890518 | 1900 | 1.43 | 0.093 | 0.093 | 10.72 | 10.72 | -4.0 | -2.0 | 4.1 | 18.8 | 18.5 | 17.2 |
| 890519 | 0100 | 1.50 | 0.083 | 0.093 | 11.98 | 10.72 | 0.0 | 0.0 | 1.4 | 17.5 | 17.8 | 15.0 |
| 890519 | 0700 | 1.54 | 0.083 | 0.083 | 11.98 | 11.98 | 4.0 | 4.0 | 6.8 | 21.2 | 20.8 | 14.3 |
| 890519 | 1300 | 1.47 | 0.093 | 0.093 | 10.72 | 10.72 | 4.0 | -2.0 | 1.8 | 23.5 | 22.3 | 15.5 |
| 890519 | 1900 | 1.48 | 0.103 | 0.103 | 9.71 | 9.71 | -16.0 | -16.0 | -9.7 | 25.2 | 25.1 | 20.6 |
| 890520 | 0100 | 1.57 | 0.103 | 0.103 | 9.71 | 9.71 | -12.0 | -12.0 | -9.9 | 20.4 | 20.4 | 16.5 |
| 890520 | 0700 | 1.25 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -8.0 | -1.8 | 22.3 | 21.5 | 18.9 |
| 890520 | 1300 | 1.20 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -10.0 | -4.2 | 21.1 | 19.8 | 19.1 |
| 890521 | 1900 | 0.69 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | -6.0 | -8.1 | 21.7 | 22.1 | 16.9 |
| 890522 | 0100 | 0.61 | 0.093 | 0.103 | 10.72 | 9.71 | -10.0 | -6.0 | -7.3 | 22.6 | 22.8 | 19.8 |
| 890522 | 0700 | 0.55 | 0.093 | 0.103 | 10.72 | 9.71 | -8.0 | -8.0 | -6.0 | 23.8 | 24.2 | 15.7 |
| 890522 | 1300 | 0.52 | 0.113 | 0.113 | 8.87 | 8.87 | -2.0 | -12.0 | -8.2 | 23.6 | 24.4 | 19.3 |
| 890522 | 1900 | 0.52 | 0.113 | 0.113 | 8.87 | 8.87 | -2.0 | -10.0 | -13.7 | 25.5 | 26.5 | 19.5 |
| 890523 | 0100 | 0.47 | 0.064 | 0.113 | 15.62 | 8.87 | -10.0 | -8.0 | -16.4 | 24.8 | 26.1 | 18.0 |
| 890523 | 0700 | 0.49 | 0.064 | 0.064 | 15.62 | 15.62 | -14.0 | -12.0 | -12.0 | 23.3 | 24.1 | 17.4 |
| 890523 | 1300 | 0.55 | 0.064 | 0.064 | 15.62 | 15.62 | -24.0 | -24.0 | -31.4 | 35.7 | 20.7 | 15.3 |
| 890523 | 1900 | 0.52 | 0.064 | 0.064 | 15.62 | 15.62 | -8.0 | -22.0 | -26.6 | 27.7 | 22.9 | 16.2 |
| 890524 | 0100 | 0.48 | 0.064 | 0.064 | 15.62 | 15.62 | -10.0 | -32.0 | -28.3 | 30.8 | 25.5 | 20.4 |
| 890524 | 0700 | 0.49 | 0.064 | 0.064 | 15.62 | 15.62 | -14.0 | -40.0 | -28.7 | 29.7 | 22.3 | 17.3 |
| 890524 | 1300 | 0.46 | 0.064 | 0.064 | 15.62 | 15.62 | -14.0 | -42.0 | -30.3 | 30.7 | 24.0 | 17.6 |
| 890524 | 1900 | 0.49 | 0.064 | 0.064 | 15.62 | 15.62 | -10.0 | -22.0 | -31.6 | 29.2 | 20.0 | 18.5 |
| 890525 | 0100 | 0.42 | 0.064 | 0.064 | 15.62 | 15.62 | -8.0 | -34.0 | -26.6 | 28.4 | 19.1 | 20.4 |
| 890525 | 0700 | 0.46 | 0.074 | 0.074 | 13.57 | 13.57 | -16.0 | -16.0 | -25.8 | 24.7 | 22.1 | 14.8 |
| 890525 | 1900 | 0.46 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -14.0 | -27.4 | 27.1 | 19.4 | 14.9 |
| 890526 | 1900 | 0.41 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -32.0 | -28.8 | 32.7 | 16.9 | 19.2 |
| 890527 | 0100 | 0.39 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -24.0 | -26.1 | 26.3 | 22.1 | 25.7 |
| 890527 | 0700 | 0.38 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -16.0 | -31.7 | 28.6 | 20.9 | 18.7 |
| 890527 | 1300 | 0.39 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -44.0 | -33.5 | 34.4 | 17.5 | 17.7 |
| 890527 | 1900 | 0.59 | 0.230 | 0.230 | 4.35 | 4.35 | 50.0 | 12.0 | 10.2 | 65.3 | 33.6 | 34.7 |
| 890528 | 0100 | 0.49 | 0.230 | 0.230 | 4.35 | 4.35 | 44.0 | 44.0 | 14.4 | 73.7 | 42.7 | 31.7 |
| 890528 | 0700 | 1.43 | 0.171 | 0.171 | 5.83 | 5.83 | 40.0 | 40.0 | 35.6 | 16.5 | 15.8 | 14.2 |
| 890528 | 1300 | 0.86 | 0.162 | 0.162 | 6.19 | 6.19 | 32.0 | 32.0 | 30.8 | 19.9 | 17.1 | 11.6 |
| 890528 | 1900 | 0.62 | 0.171 | 0.171 | 5.83 | 5.83 | 26.0 | 24.0 | 20.6 | 31.1 | 22.5 | 11.4 |
| 890529 | 0100 | 0.58 | 0.181 | 0.162 | 5.52 | 6.19 | 28.0 | 26.0 | 17.2 | 31.2 | 19.0 | 10.3 |
| 890529 | 0700 | 0.46 | 0.142 | 0.152 | 7.04 | 6.58 | 4.0 | 2.0 | 8.5 | 35.7 | 30.1 | 25.3 |
| 890529 | 1300 | 0.41 | 0.142 | 0.152 | 7.04 | 6.58 | -4.0 | -32.0 | -14.5 | 30.1 | 32.4 | 26.3 |
| 890529 | 1900 | 0.35 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -12.0 | -27.4 | 30.7 | 27.0 | 20.1 |
| 890530 | 0100 | 0.37 | 0.083 | 0.083 | 11.98 | 11.98 | -16.0 | -40.0 | -34.5 | 31.1 | 26.3 | 19.0 |
| 890530 | 0700 | 0.41 | 0.220 | 0.220 | 4.54 | 4.54 | -50.0 | -40.0 | -40.0 | 28.2 | 22.3 | 18.8 |

(Continued)

(Sheet 22 of 30)

(Continued)

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|--------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FDP} deg |
| 890530 | 1300 | 0.46 | 0.123 | 0.250 | 8.16 | 4.01 | -38.0 | -48.0 | -42.6 | 22.6 | 18.6 | 17.1 |
| 890530 | 1900 | 0.37 | 0.132 | 0.132 | 7.56 | 7.56 | -40.0 | -40.0 | -38.3 | 22.0 | 14.7 | 10.7 |
| 890531 | 0100 | 0.36 | 0.132 | 0.142 | 7.56 | 7.04 | -38.0 | -40.0 | -36.4 | 21.6 | 15.5 | 11.2 |
| 890531 | 0700 | 0.36 | 0.132 | 0.132 | 7.56 | 7.56 | -38.0 | -38.0 | -36.9 | 17.4 | 15.9 | 9.7 |
| 890531 | 1300 | 0.36 | 0.142 | 0.142 | 7.04 | 7.04 | -40.0 | -40.0 | -37.3 | 19.4 | 15.9 | 7.9 |
| 890531 | 1900 | 0.34 | 0.132 | 0.132 | 7.56 | 7.56 | -38.0 | -42.0 | -36.2 | 19.6 | 12.5 | 8.1 |
| 890601 | 0700 | 0.38 | 0.191 | 0.191 | 5.24 | 5.24 | -50.0 | -50.0 | -43.0 | 19.9 | 11.8 | 5.3 |
| 890601 | 1300 | 0.35 | 0.142 | 0.113 | 7.04 | 8.87 | -42.0 | -42.0 | -39.5 | 17.8 | 11.7 | 7.7 |
| 890601 | 1900 | 0.33 | 0.142 | 0.123 | 7.04 | 8.16 | -44.0 | -44.0 | -41.3 | 23.1 | 12.7 | 12.9 |
| 890602 | 0100 | 0.33 | 0.113 | 0.123 | 8.87 | 8.16 | -32.0 | -34.0 | -39.2 | 21.4 | 14.6 | 9.7 |
| 890602 | 0700 | 0.30 | 0.142 | 0.132 | 7.04 | 7.56 | -44.0 | -42.0 | -40.7 | 26.2 | 16.9 | 12.7 |
| 890602 | 1300 | 0.31 | 0.142 | 0.123 | 7.04 | 8.16 | -42.0 | -40.0 | -38.4 | 22.7 | 15.8 | 13.2 |
| 890603 | 0100 | 0.33 | 0.142 | 0.113 | 7.04 | 8.87 | -38.0 | -40.0 | -27.1 | 25.7 | 27.0 | 9.6 |
| 890603 | 1300 | 0.29 | 0.132 | 0.123 | 7.56 | 8.16 | -40.0 | -38.0 | -37.8 | 23.3 | 20.9 | 11.0 |
| 890603 | 1900 | 0.29 | 0.113 | 0.113 | 8.87 | 8.87 | -26.0 | -26.0 | -39.5 | 30.9 | 19.2 | 16.2 |
| 890604 | 0100 | 0.29 | 0.250 | 0.113 | 4.01 | 8.87 | -60.0 | -54.0 | -40.7 | 30.2 | 16.5 | 6.8 |
| 890604 | 0700 | 0.29 | 0.181 | 0.083 | 5.52 | 11.98 | -50.0 | -50.0 | -41.0 | 26.9 | 14.6 | 6.2 |
| 890604 | 1000 | 0.34 | 0.162 | 0.162 | 6.19 | 6.19 | -46.0 | -46.0 | -41.3 | 19.7 | 11.2 | 4.7 |
| 890604 | 1300 | 0.33 | 0.142 | 0.142 | 7.04 | 7.04 | -40.0 | -42.0 | -39.7 | 23.6 | 11.2 | 6.7 |
| 890605 | 0100 | 0.32 | 0.132 | 0.113 | 7.56 | 8.87 | -40.0 | -40.0 | -40.8 | 19.3 | 11.3 | 8.3 |
| 890605 | 0700 | 0.36 | 0.142 | 0.113 | 7.04 | 8.87 | -42.0 | -42.0 | -42.6 | 23.0 | 23.1 | 6.7 |
| 890605 | 1300 | 0.34 | 0.162 | 0.123 | 6.19 | 8.16 | -44.0 | -42.0 | -41.8 | 19.8 | 13.2 | 7.3 |
| 890605 | 1900 | 0.50 | 0.181 | 0.181 | 5.52 | 5.52 | -48.0 | -42.0 | -45.3 | 15.9 | 12.4 | 10.2 |
| 890606 | 0100 | 0.37 | 0.171 | 0.171 | 5.83 | 5.83 | -48.0 | -48.0 | -45.1 | 16.8 | 10.6 | 4.9 |
| 890606 | 0700 | 0.43 | 0.152 | 0.142 | 6.58 | 7.04 | -46.0 | -44.0 | -44.5 | 18.6 | 13.1 | 8.1 |
| 890606 | 1000 | 0.48 | 0.152 | 0.152 | 6.58 | 6.58 | -44.0 | -44.0 | -47.1 | 18.9 | 11.2 | 5.6 |
| 890606 | 1300 | 0.40 | 0.142 | 0.142 | 7.04 | 7.04 | -40.0 | -42.0 | -42.3 | 18.6 | 12.5 | 6.4 |
| 890606 | 1600 | 0.43 | 0.171 | 0.113 | 5.83 | 8.87 | -48.0 | -50.0 | -43.0 | 22.2 | 13.5 | 5.4 |
| 890606 | 1900 | 0.47 | 0.171 | 0.123 | 5.83 | 8.16 | -48.0 | -50.0 | -44.5 | 22.6 | 12.3 | 5.8 |
| 890607 | 0100 | 0.40 | 0.162 | 0.113 | 6.19 | 8.87 | -46.0 | -46.0 | -38.9 | 25.2 | 16.6 | 23.0 |
| 890607 | 0700 | 0.60 | 0.162 | 0.162 | 6.19 | 6.19 | -46.0 | -46.0 | -43.7 | 20.5 | 13.7 | 10.2 |
| 890607 | 1300 | 0.64 | 0.152 | 0.152 | 6.58 | 6.58 | -44.0 | -46.0 | -43.6 | 14.9 | 11.0 | 5.8 |
| 890607 | 1900 | 0.68 | 0.162 | 0.162 | 6.19 | 6.19 | -46.0 | -44.0 | -43.2 | 19.3 | 14.1 | 9.2 |
| 890608 | 0100 | 0.64 | 0.162 | 0.162 | 6.19 | 6.19 | -44.0 | -44.0 | -41.9 | 17.1 | 14.2 | 7.2 |
| 890608 | 0700 | 0.64 | 0.171 | 0.162 | 5.83 | 6.19 | -48.0 | -44.0 | -44.9 | 18.3 | 15.7 | 12.2 |
| 890608 | 1300 | 0.49 | 0.152 | 0.152 | 6.58 | 6.58 | -46.0 | -46.0 | -44.1 | 23.7 | 19.5 | 14.4 |
| 890608 | 1900 | 0.55 | 0.152 | 0.152 | 6.58 | 6.58 | -44.0 | -44.0 | -40.5 | 20.3 | 15.7 | 12.6 |
| 890609 | 0100 | 0.55 | 0.162 | 0.113 | 6.19 | 8.87 | -46.0 | -46.0 | -40.2 | 24.7 | 16.4 | 12.0 |
| 890609 | 0700 | 0.56 | 0.162 | 0.113 | 6.19 | 8.87 | -44.0 | -42.0 | -38.9 | 23.2 | 18.7 | 16.3 |
| 890609 | 1300 | 0.55 | 0.142 | 0.113 | 7.04 | 8.87 | -40.0 | -40.0 | -40.0 | 22.6 | 18.1 | 10.4 |
| 890609 | 1900 | 0.63 | 0.142 | 0.142 | 7.04 | 7.04 | -40.0 | -40.0 | -40.5 | 17.1 | 13.6 | 8.4 |
| 890610 | 0100 | 0.48 | 0.132 | 0.132 | 7.56 | 7.56 | -40.0 | -40.0 | -40.4 | 14.9 | 13.4 | 4.8 |
| 890610 | 0700 | 0.46 | 0.142 | 0.113 | 7.04 | 8.87 | -40.0 | -40.0 | -39.9 | 16.4 | 14.0 | 7.8 |
| 890610 | 1300 | 0.51 | 0.132 | 0.113 | 7.56 | 8.87 | -42.0 | -40.0 | -40.1 | 18.0 | 16.0 | 11.7 |
| 890610 | 1900 | 0.45 | 0.142 | 0.113 | 7.04 | 8.87 | -42.0 | -40.0 | -36.7 | 17.1 | 15.7 | 8.5 |
| 890611 | 0100 | 0.39 | 0.162 | 0.113 | 6.19 | 8.87 | -48.0 | -40.0 | -37.2 | 28.2 | 19.3 | 9.3 |
| 890611 | 0700 | 0.89 | 0.230 | 0.230 | 4.35 | 4.35 | 56.0 | 28.0 | 29.1 | 31.6 | 26.0 | 26.1 |
| 890611 | 1300 | 0.75 | 0.191 | 0.191 | 5.24 | 5.24 | 34.0 | 44.0 | 27.0 | 26.3 | 18.2 | 11.8 |
| 890611 | 1900 | 0.58 | 0.181 | 0.191 | 5.52 | 5.24 | 34.0 | 32.0 | 21.4 | 40.5 | 19.1 | 10.1 |

(Continued)

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(Continued)

| Date | Time | H _{no} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890612 | 0100 | 0.45 | 0.113 | 0.123 | 8.67 | 8.16 | -34.0 | -40.0 | -8.8 | 59.9 | 36.0 | 26.8 |
| 890612 | 0700 | 0.42 | 0.113 | 0.103 | 8.87 | 9.71 | -24.0 | 4.0 | -18.2 | 41.4 | 37.5 | 35.8 |
| 890612 | 1300 | 0.43 | 0.103 | 0.103 | 9.71 | 9.71 | 10.0 | 4.0 | -14.0 | 39.5 | 34.4 | 33.1 |
| 890612 | 1900 | 0.49 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | -2.0 | -14.1 | 30.2 | 25.1 | 20.9 |
| 890612 | 2200 | 0.48 | 0.093 | 0.113 | 10.72 | 8.87 | 4.0 | -8.0 | -17.2 | 33.4 | 26.8 | 20.9 |
| 890613 | 0100 | 0.43 | 0.123 | 0.113 | 8.16 | 8.87 | -22.0 | -22.0 | -16.1 | 36.3 | 30.5 | 33.2 |
| 890613 | 0700 | 0.42 | 0.210 | 0.103 | 4.75 | 9.71 | -48.0 | -48.0 | -28.7 | 38.1 | 19.0 | 6.1 |
| 890613 | 1300 | 0.38 | 0.103 | 0.103 | 9.71 | 9.71 | -4.0 | -26.0 | -25.3 | 33.1 | 24.2 | 29.7 |
| 890614 | 0100 | 0.38 | 0.142 | 0.113 | 7.04 | 8.87 | -44.0 | -42.0 | -30.5 | 30.7 | 23.3 | 5.6 |
| 890614 | 0700 | 0.37 | 0.132 | 0.113 | 7.56 | 8.87 | -40.0 | -40.0 | -36.8 | 28.1 | 19.5 | 9.9 |
| 890614 | 1300 | 0.39 | 0.113 | 0.113 | 8.87 | 8.87 | -38.0 | -40.0 | -38.0 | 30.8 | 22.9 | 15.2 |
| 890614 | 1900 | 0.35 | 0.113 | 0.113 | 8.87 | 8.87 | -38.0 | -38.0 | -36.8 | 30.7 | 25.4 | 15.0 |
| 890615 | 0100 | 0.43 | 0.123 | 0.113 | 8.16 | 8.87 | -40.0 | -42.0 | -7.9 | 65.2 | 28.1 | 15.0 |
| 890615 | 0700 | 0.40 | 0.103 | 0.113 | 9.71 | 8.87 | -32.0 | -32.0 | -20.2 | 57.0 | 44.5 | 18.4 |
| 890615 | 1300 | 0.43 | 0.162 | 0.171 | 6.19 | 5.83 | 16.0 | 14.0 | -16.0 | 52.2 | 35.2 | 17.7 |
| 890615 | 1900 | 0.36 | 0.113 | 0.113 | 8.87 | 8.87 | -38.0 | -38.0 | -37.0 | 46.5 | 34.4 | 16.6 |
| 890616 | 0100 | 0.34 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -34.0 | -38.0 | 41.2 | 29.4 | 16.6 |
| 890616 | 0700 | 0.37 | 0.142 | 0.113 | 7.04 | 8.87 | -42.0 | -40.0 | -39.6 | 37.0 | 30.8 | 40.2 |
| 890616 | 1300 | 0.48 | 0.220 | 0.103 | 4.54 | 9.71 | -52.0 | -50.0 | -35.3 | 36.4 | 19.1 | 6.7 |
| 890616 | 1900 | 0.54 | 0.210 | 0.113 | 4.75 | 8.87 | -50.0 | -50.0 | -31.3 | 39.9 | 21.5 | 6.7 |
| 890617 | 0100 | 0.56 | 0.103 | 0.113 | 9.71 | 8.87 | -14.0 | -14.0 | -24.2 | 32.1 | 23.8 | 23.1 |
| 890617 | 0700 | 0.57 | 0.171 | 0.113 | 5.83 | 8.87 | -46.0 | -46.0 | -33.4 | 39.4 | 24.8 | 10.3 |
| 890617 | 1300 | 0.59 | 0.181 | 0.123 | 5.52 | 8.16 | -42.0 | -40.0 | -32.5 | 34.2 | 20.1 | 8.4 |
| 890617 | 1900 | 0.49 | 0.113 | 0.113 | 8.87 | 8.87 | -28.0 | -38.0 | -29.0 | 39.9 | 24.7 | 31.1 |
| 890618 | 0700 | 0.46 | 0.123 | 0.103 | 8.16 | 9.71 | -30.0 | -30.0 | -32.5 | 32.8 | 25.2 | 27.0 |
| 890618 | 1300 | 0.46 | 0.103 | 0.103 | 9.71 | 9.71 | -16.0 | -36.0 | -33.2 | 33.7 | 25.3 | 25.4 |
| 890618 | 1900 | 0.41 | 0.103 | 0.103 | 9.71 | 9.71 | -22.0 | -22.0 | -28.0 | 34.7 | 29.6 | 27.6 |
| 890619 | 0100 | 0.38 | 0.113 | 0.113 | 8.87 | 8.87 | -32.0 | -32.0 | -31.5 | 26.4 | 23.4 | 22.9 |
| 890619 | 0700 | 0.41 | 0.103 | 0.103 | 9.71 | 9.71 | -30.0 | -30.0 | -27.1 | 30.4 | 26.0 | 22.1 |
| 890619 | 1300 | 0.39 | 0.123 | 0.123 | 8.16 | 8.16 | -32.0 | -32.0 | -32.4 | 28.0 | 26.9 | 23.6 |
| 890619 | 1900 | 0.42 | 0.123 | 0.123 | 8.16 | 8.16 | -36.0 | -36.0 | -34.6 | 31.3 | 25.9 | 20.5 |
| 890620 | 0100 | 0.40 | 0.132 | 0.103 | 7.56 | 9.71 | -38.0 | -36.0 | -32.4 | 25.6 | 20.0 | 15.9 |
| 890620 | 0700 | 0.40 | 0.113 | 0.113 | 8.87 | 8.87 | -30.0 | -40.0 | -35.0 | 33.1 | 28.0 | 27.4 |
| 890620 | 1300 | 0.38 | 0.113 | 0.113 | 8.87 | 8.87 | -32.0 | -32.0 | -32.6 | 23.1 | 21.9 | 19.3 |
| 890620 | 1900 | 0.43 | 0.123 | 0.123 | 8.16 | 8.16 | -36.0 | -32.0 | -35.3 | 24.9 | 21.9 | 16.0 |
| 890621 | 0100 | 0.40 | 0.132 | 0.123 | 7.56 | 8.16 | -40.0 | -40.0 | -35.6 | 22.4 | 19.0 | 16.6 |
| 890621 | 0700 | 0.42 | 0.132 | 0.132 | 7.56 | 7.56 | -30.0 | -34.0 | -35.5 | 25.4 | 22.8 | 16.1 |
| 890621 | 1000 | 0.41 | 0.142 | 0.132 | 7.04 | 7.56 | -40.0 | -24.0 | -31.5 | 22.8 | 22.2 | 16.5 |
| 890621 | 1300 | 0.39 | 0.132 | 0.132 | 7.56 | 7.56 | -40.0 | -26.0 | -34.3 | 21.3 | 20.4 | 15.5 |
| 890621 | 1600 | 0.43 | 0.142 | 0.142 | 7.04 | 7.04 | -38.0 | -38.0 | -31.0 | 21.5 | 19.9 | 15.9 |
| 890621 | 1900 | 0.43 | 0.152 | 0.132 | 6.58 | 7.56 | -38.0 | -32.0 | -35.9 | 24.5 | 22.7 | 15.9 |
| 890621 | 2200 | 0.39 | 0.132 | 0.123 | 7.56 | 8.16 | -26.0 | -22.0 | -33.2 | 27.9 | 24.6 | 19.4 |
| 890622 | 0100 | 0.35 | 0.142 | 0.132 | 7.04 | 7.56 | -28.0 | -28.0 | -31.1 | 23.8 | 23.4 | 17.9 |
| 890622 | 0400 | 0.36 | 0.103 | 0.123 | 9.71 | 8.16 | -14.0 | -26.0 | -29.0 | 25.5 | 25.0 | 18.8 |
| 890622 | 0700 | 0.38 | 0.123 | 0.123 | 8.16 | 8.16 | -32.0 | -26.0 | -30.6 | 30.2 | 27.4 | 24.7 |
| 890622 | 1000 | 0.38 | 0.132 | 0.113 | 7.56 | 8.87 | -22.0 | -22.0 | -31.8 | 32.2 | 31.3 | 23.6 |
| 890622 | 1300 | 0.36 | 0.123 | 0.113 | 8.16 | 8.87 | -38.0 | -28.0 | -35.6 | 32.5 | 28.1 | 31.5 |
| 890622 | 1600 | 0.38 | 0.113 | 0.113 | 8.87 | 8.87 | -4.0 | -28.0 | -27.7 | 29.7 | 24.8 | 25.1 |
| 890622 | 1900 | 0.41 | 0.113 | 0.113 | 8.87 | 8.87 | -14.0 | -14.0 | -24.4 | 33.8 | 28.4 | 24.5 |
| 890622 | 2200 | 0.39 | 0.074 | 0.113 | 13.57 | 8.87 | -12.0 | -12.0 | -24.2 | 34.5 | 30.5 | 21.7 |

(Continued)

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(Continued)

| Date | Time | Z ₉₀ m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IFS} deg | θ _{p,SW} deg | Δθ _{IFS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890623 | 0100 | 0.38 | 0.074 | 0.074 | 13.57 | 13.57 | -10.0 | -26.0 | -24.2 | 30.4 | 28.4 | 25.7 |
| 890623 | 0400 | 0.41 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -16.0 | -20.5 | 27.6 | 24.9 | 18.9 |
| 890623 | 0700 | 0.47 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -12.0 | -17.8 | 28.8 | 27.7 | 23.5 |
| 890623 | 1300 | 0.49 | 0.083 | 0.083 | 11.98 | 11.98 | -14.0 | -14.0 | -16.0 | 26.8 | 27.3 | 21.9 |
| 890623 | 1600 | 0.48 | 0.083 | 0.083 | 11.98 | 11.98 | -10.0 | -10.0 | -16.0 | 24.1 | 27.8 | 21.0 |
| 890623 | 1900 | 0.52 | 0.083 | 0.083 | 11.98 | 11.98 | 2.0 | -16.0 | -10.4 | 28.3 | 27.7 | 27.6 |
| 890623 | 2200 | 0.52 | 0.083 | 0.083 | 11.98 | 11.98 | 2.0 | -8.0 | -11.0 | 27.9 | 25.5 | 18.7 |
| 890624 | 0100 | 0.47 | 0.093 | 0.093 | 10.72 | 11.98 | -8.0 | -8.0 | -15.3 | 24.8 | 24.8 | 20.2 |
| 890624 | 0400 | 0.46 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -12.0 | -15.6 | 23.7 | 23.7 | 19.6 |
| 890624 | 0700 | 0.44 | 0.093 | 0.093 | 10.72 | 10.72 | -10.0 | -10.0 | -10.4 | 27.6 | 28.2 | 25.6 |
| 890624 | 1000 | 0.44 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -12.0 | -12.3 | 29.3 | 28.9 | 25.7 |
| 890624 | 1300 | 0.41 | 0.093 | 0.093 | 10.72 | 10.72 | -10.0 | -8.0 | -7.2 | 29.1 | 27.4 | 23.6 |
| 890624 | 1600 | 0.38 | 0.093 | 0.093 | 10.72 | 10.72 | -10.0 | -10.0 | -10.8 | 28.6 | 26.3 | 19.7 |
| 890624 | 1900 | 0.41 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -10.0 | -14.3 | 26.0 | 25.4 | 21.1 |
| 890624 | 2200 | 0.48 | 0.093 | 0.093 | 10.72 | 10.72 | -8.0 | -4.0 | -7.1 | 26.2 | 27.2 | 24.8 |
| 890625 | 0100 | 0.47 | 0.093 | 0.093 | 10.72 | 10.72 | -14.0 | -12.0 | -13.6 | 25.9 | 26.9 | 22.4 |
| 890625 | 0400 | 0.49 | 0.103 | 0.103 | 9.71 | 9.71 | -16.0 | -4.0 | -10.3 | 30.5 | 29.8 | 28.3 |
| 890625 | 0700 | 0.60 | 0.210 | 0.201 | 4.75 | 4.98 | 8.0 | 6.0 | -4.3 | 32.3 | 30.1 | 32.1 |
| 890625 | 1000 | 0.59 | 0.103 | 0.103 | 9.71 | 9.71 | 4.0 | 0.0 | -16.2 | 34.0 | 32.9 | 24.2 |
| 890625 | 1300 | 0.52 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -14.0 | -9.3 | 32.8 | 32.9 | 23.8 |
| 890625 | 1600 | 0.52 | 0.103 | 0.103 | 9.71 | 9.71 | 2.0 | -18.0 | -8.2 | 30.0 | 32.4 | 22.2 |
| 890625 | 1900 | 0.61 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -12.0 | -16.0 | 25.9 | 28.0 | 25.2 |
| 890625 | 2200 | 0.73 | 0.093 | 0.103 | 10.72 | 9.71 | -10.0 | -12.0 | -12.9 | 22.7 | 25.7 | 17.6 |
| 890626 | 0100 | 0.78 | 0.103 | 0.103 | 9.71 | 9.71 | -12.0 | -12.0 | -14.4 | 20.4 | 22.4 | 17.4 |
| 890626 | 0400 | 0.75 | 0.093 | 0.103 | 10.72 | 9.71 | -10.0 | -12.0 | -14.5 | 21.1 | 22.5 | 17.4 |
| 890626 | 0700 | 0.77 | 0.103 | 0.103 | 9.71 | 9.71 | -12.0 | -12.0 | -10.6 | 19.6 | 20.5 | 12.3 |
| 890627 | 0100 | 0.68 | 0.113 | 0.113 | 8.87 | 8.87 | -12.0 | -10.0 | -11.6 | 22.3 | 23.3 | 20.0 |
| 890627 | 0700 | 0.65 | 0.123 | 0.123 | 8.16 | 8.16 | -8.0 | -8.0 | -18.0 | 22.5 | 19.2 | 15.6 |
| 890627 | 1300 | 0.62 | 0.113 | 0.123 | 8.87 | 8.16 | -12.0 | -10.0 | -20.4 | 20.1 | 22.3 | 14.7 |
| 890628 | 0100 | 0.57 | 0.103 | 0.103 | 9.71 | 9.71 | -14.0 | -14.0 | -15.8 | 17.3 | 17.3 | 8.9 |
| 890628 | 0700 | 0.47 | 0.103 | 0.103 | 9.71 | 9.71 | -16.0 | -14.0 | -16.2 | 15.6 | 16.0 | 10.7 |
| 890628 | 1900 | 0.33 | 0.113 | 0.113 | 8.87 | 8.87 | -10.0 | -12.0 | -25.6 | 37.7 | 31.0 | 17.8 |
| 890629 | 0100 | 0.29 | 0.123 | 0.123 | 8.16 | 8.16 | -16.0 | -16.0 | -24.5 | 31.9 | 28.3 | 24.7 |
| 890629 | 0700 | 0.25 | 0.123 | 0.123 | 8.16 | 8.16 | -36.0 | -36.0 | -37.5 | 35.1 | 27.1 | 26.9 |
| 890629 | 1000 | 0.29 | 0.123 | 0.250 | 8.16 | 4.01 | -34.0 | -40.0 | -33.4 | 52.9 | 45.5 | 27.8 |
| 890629 | 1300 | 0.92 | 0.250 | 0.250 | 4.01 | 4.01 | 54.0 | 52.0 | 47.1 | 25.1 | 23.7 | 20.3 |
| 890629 | 1600 | 0.95 | 0.181 | 0.181 | 5.52 | 5.52 | 48.0 | 48.0 | 44.6 | 21.4 | 21.5 | 16.7 |
| 890629 | 1900 | 0.78 | 0.171 | 0.171 | 5.83 | 5.83 | 34.0 | 40.0 | 35.8 | 16.6 | 17.0 | 10.8 |
| 890629 | 2200 | 0.71 | 0.162 | 0.162 | 6.19 | 6.19 | 30.0 | 32.0 | 30.0 | 19.3 | 18.5 | 10.9 |
| 890630 | 0100 | 0.71 | 0.162 | 0.162 | 6.19 | 6.19 | 36.0 | 36.0 | 28.9 | 21.2 | 20.9 | 16.3 |
| 890630 | 0400 | 0.84 | 0.162 | 0.162 | 6.19 | 6.19 | 22.0 | 36.0 | 27.6 | 20.3 | 20.5 | 13.6 |
| 890630 | 0700 | 0.84 | 0.181 | 0.181 | 5.52 | 5.52 | 38.0 | 24.0 | 28.6 | 24.1 | 21.9 | 16.0 |
| 890630 | 1300 | 0.88 | 0.162 | 0.171 | 6.19 | 5.83 | 22.0 | 0.0 | 8.5 | 30.6 | 29.7 | 26.0 |
| 890630 | 1900 | 0.64 | 0.132 | 0.181 | 7.56 | 5.52 | 0.0 | 0.0 | 16.3 | 32.8 | 30.9 | 15.3 |
| 890705 | 0100 | 0.84 | 0.142 | 0.142 | 7.04 | 7.04 | -42.0 | -32.0 | -37.3 | 17.3 | 16.2 | 13.8 |
| 890705 | 0700 | 0.84 | 0.142 | 0.142 | 7.04 | 7.04 | -40.0 | -32.0 | -38.3 | 21.3 | 19.9 | 13.5 |
| 890705 | 1000 | 0.79 | 0.162 | 0.142 | 6.19 | 7.04 | -44.0 | -40.0 | -40.7 | 21.2 | 19.8 | 17.2 |
| 890705 | 1300 | 0.78 | 0.132 | 0.152 | 7.56 | 6.58 | -28.0 | -30.0 | -37.2 | 19.9 | 17.6 | 15.6 |
| 890705 | 1900 | 0.74 | 0.152 | 0.152 | 6.58 | 6.58 | -42.0 | -42.0 | -36.2 | 21.8 | 17.4 | 19.6 |
| 890706 | 0100 | 0.62 | 0.152 | 0.152 | 6.58 | 6.58 | -42.0 | -42.0 | -37.9 | 28.8 | 16.5 | 9.9 |
| 890706 | 0700 | 0.59 | 0.152 | 0.103 | 6.58 | 9.71 | -44.0 | -28.0 | -35.3 | 35.9 | 22.3 | 18.1 |
| 890706 | 1900 | 0.53 | 0.083 | 0.093 | 11.98 | 10.72 | -12.0 | -40.0 | -28.0 | 36.5 | 22.9 | 24.2 |

(Continued)

(Sheet 25 of 30)

(Continued)

| Date | Time | R _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890707 | 0100 | 0.52 | 0.142 | 0.083 | 7.04 | 11.98 | -44.0 | -44.0 | -33.2 | 40.0 | 18.4 | 14.6 |
| 890707 | 1300 | 0.48 | 0.162 | 0.093 | 6.19 | 10.72 | -30.0 | -48.0 | -34.3 | 43.5 | 16.9 | 5.5 |
| 890708 | 0100 | 0.32 | 0.152 | 0.093 | 6.58 | 10.72 | -46.0 | -46.0 | -29.3 | 41.1 | 23.7 | 7.6 |
| 890708 | 0700 | 0.28 | 0.103 | 0.103 | 9.71 | 9.71 | -4.0 | -16.0 | -25.1 | 41.0 | 27.6 | 30.8 |
| 890708 | 1900 | 0.28 | 0.142 | 0.113 | 7.04 | 8.87 | -46.0 | -12.0 | -35.6 | 38.3 | 31.5 | 32.4 |
| 890709 | 0100 | 0.29 | 0.142 | 0.142 | 7.04 | 7.04 | -44.0 | -20.0 | -35.9 | 34.8 | 32.7 | 24.2 |
| 890709 | 0700 | 0.35 | 0.250 | 0.250 | 4.01 | 4.01 | 46.0 | 36.0 | -4.3 | 65.4 | 27.5 | 16.4 |
| 890709 | 1300 | 0.33 | 0.074 | 0.132 | 13.57 | 7.56 | -12.0 | -16.0 | -16.2 | 46.7 | 31.2 | 16.0 |
| 890709 | 1900 | 0.31 | 0.152 | 0.113 | 6.58 | 8.87 | -38.0 | -34.0 | -23.1 | 31.5 | 32.3 | 23.5 |
| 890710 | 0100 | 0.31 | 0.132 | 0.103 | 7.56 | 9.71 | -40.0 | -40.0 | -30.5 | 26.6 | 22.9 | 21.8 |
| 890710 | 0700 | 0.29 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -34.0 | -30.9 | 23.2 | 17.5 | 15.0 |
| 890710 | 1300 | 0.32 | 0.123 | 0.113 | 8.16 | 8.87 | -34.0 | -34.0 | -29.5 | 24.9 | 20.7 | 11.5 |
| 890710 | 1900 | 0.36 | 0.123 | 0.123 | 8.16 | 8.16 | -34.0 | -36.0 | -32.8 | 22.8 | 18.2 | 17.3 |
| 890711 | 0100 | 0.35 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -36.0 | -34.2 | 22.9 | 18.5 | 15.9 |
| 890711 | 0700 | 0.35 | 0.103 | 0.103 | 9.71 | 9.71 | -34.0 | -36.0 | -32.1 | 24.8 | 19.6 | 19.1 |
| 890711 | 1300 | 0.36 | 0.103 | 0.103 | 9.71 | 9.71 | -32.0 | -34.0 | -31.1 | 26.5 | 24.3 | 22.9 |
| 890711 | 1900 | 0.36 | 0.123 | 0.103 | 8.16 | 9.71 | -30.0 | -30.0 | -31.0 | 22.4 | 19.8 | 0.8 |
| 890712 | 0700 | 0.43 | 0.103 | 0.103 | 9.71 | 9.71 | -36.0 | -36.0 | -13.2 | 36.4 | 20.7 | 20.4 |
| 890712 | 1900 | 0.41 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -36.0 | -9.4 | 64.8 | 17.9 | 18.4 |
| 890713 | 0100 | 0.50 | 0.210 | 0.113 | 4.75 | 8.87 | 40.0 | 38.0 | 3.9 | 62.3 | 18.6 | 13.3 |
| 890713 | 0700 | 0.39 | 0.103 | 0.113 | 9.71 | 8.87 | -32.0 | -26.0 | -3.1 | 49.5 | 25.3 | 19.6 |
| 890713 | 1300 | 0.37 | 0.103 | 0.103 | 9.71 | 9.71 | -32.0 | -36.0 | -38.5 | 38.9 | 35.3 | 21.0 |
| 890713 | 1900 | 0.37 | 0.113 | 0.103 | 8.87 | 9.71 | -34.0 | -34.0 | -39.2 | 34.6 | 34.2 | 18.8 |
| 890714 | 0100 | 0.38 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -44.0 | -40.5 | 36.7 | 30.7 | 20.2 |
| 890714 | 0700 | 0.74 | 0.162 | 0.171 | 6.19 | 5.83 | 28.0 | 30.0 | 20.8 | 27.6 | 17.7 | 9.7 |
| 890714 | 1300 | 0.96 | 0.074 | 0.074 | 13.57 | 13.57 | -18.0 | 30.0 | 18.4 | 55.9 | 18.6 | 15.0 |
| 890714 | 1900 | 0.81 | 0.083 | 0.083 | 11.98 | 11.98 | -22.0 | -22.0 | -1.4 | 54.9 | 22.4 | 16.4 |
| 890715 | 0100 | 0.83 | 0.083 | 0.083 | 11.98 | 11.98 | -22.0 | -22.0 | -13.6 | 35.4 | 21.2 | 13.2 |
| 890715 | 0700 | 0.78 | 0.083 | 0.083 | 11.98 | 11.98 | -24.0 | -24.0 | -14.7 | 28.5 | 15.7 | 11.2 |
| 890715 | 1300 | 0.82 | 0.093 | 0.093 | 10.72 | 10.72 | -28.0 | -28.0 | -21.0 | 23.4 | 21.0 | 13.8 |
| 890715 | 1900 | 0.82 | 0.093 | 0.093 | 10.72 | 10.72 | -28.0 | -26.0 | -26.7 | 21.8 | 22.7 | 19.3 |
| 890716 | 0100 | 0.84 | 0.093 | 0.093 | 10.72 | 10.72 | -20.0 | -22.0 | -29.1 | 22.7 | 23.0 | 19.0 |
| 890716 | 0700 | 0.84 | 0.093 | 0.093 | 10.72 | 10.72 | -20.0 | -32.0 | -30.9 | 26.4 | 22.9 | 20.0 |
| 890719 | 1300 | 0.68 | 0.152 | 0.152 | 6.58 | 6.58 | 12.0 | 12.0 | 9.8 | 41.5 | 29.8 | 27.1 |
| 890719 | 1900 | 0.62 | 0.162 | 0.162 | 6.19 | 6.19 | 20.0 | 20.0 | -6.7 | 51.3 | 42.8 | 23.6 |
| 890720 | 0100 | 0.54 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -36.0 | -39.8 | 46.9 | 43.9 | 25.8 |
| 890720 | 0700 | 0.55 | 0.103 | 0.113 | 9.71 | 8.87 | -34.0 | -38.0 | -41.7 | 44.7 | 36.5 | 19.1 |
| 890720 | 1300 | 0.56 | 0.162 | 0.113 | 6.19 | 8.87 | -50.0 | -44.0 | -43.1 | 33.5 | 22.1 | 21.2 |
| 890720 | 1900 | 0.59 | 0.152 | 0.123 | 6.58 | 8.16 | -46.0 | -48.0 | -43.1 | 27.5 | 16.4 | 13.0 |
| 890721 | 0100 | 0.51 | 0.132 | 0.113 | 7.56 | 8.87 | -40.0 | -42.0 | -39.2 | 22.5 | 14.7 | 10.0 |
| 890721 | 0700 | 0.55 | 0.123 | 0.123 | 8.16 | 8.16 | -38.0 | -38.0 | -40.8 | 24.0 | 15.2 | 11.1 |
| 890721 | 1300 | 0.52 | 0.123 | 0.123 | 8.16 | 8.16 | -32.0 | -38.0 | -40.0 | 21.0 | 16.7 | 12.7 |
| 890721 | 1900 | 0.54 | 0.123 | 0.123 | 8.16 | 8.16 | -26.0 | -30.0 | -38.5 | 28.6 | 18.6 | 16.0 |
| 890722 | 0100 | 0.45 | 0.123 | 0.123 | 8.16 | 8.16 | -42.0 | -42.0 | -36.0 | 26.2 | 19.5 | 21.3 |
| 890722 | 0700 | 0.57 | 0.123 | 0.123 | 8.16 | 8.16 | -38.0 | -38.0 | -38.0 | 28.5 | 21.7 | 19.8 |
| 890722 | 1300 | 0.54 | 0.113 | 0.054 | 8.87 | 18.45 | -36.0 | -36.0 | -24.9 | 37.0 | 30.3 | 11.5 |
| 890722 | 1900 | 0.54 | 0.113 | 0.064 | 8.87 | 15.62 | -34.0 | -36.0 | -30.3 | 30.3 | 27.1 | 19.2 |

(Continued)

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(Continued)

| Date | Time EST | H _{ms} m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|-------------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890723 | 0100 | 0.52 | 0.064 | 0.064 | 15.62 | 15.62 | -20.0 | -36.0 | -28.6 | 26.0 | 21.3 | 19.6 |
| 890723 | 0700 | 0.56 | 0.064 | 0.064 | 15.62 | 15.62 | -10.0 | -12.0 | -26.5 | 28.2 | 22.9 | 21.2 |
| 890723 | 1300 | 0.51 | 0.064 | 0.064 | 15.62 | 15.62 | -8.0 | -18.0 | -22.8 | 27.4 | 23.1 | 22.0 |
| 890723 | 1900 | 0.60 | 0.064 | 0.064 | 15.62 | 15.62 | -18.0 | -18.0 | -23.5 | 19.9 | 20.2 | 16.1 |
| 890724 | 0100 | 0.58 | 0.064 | 0.064 | 15.62 | 15.62 | -10.0 | -10.0 | -22.3 | 27.2 | 21.2 | 15.2 |
| 890724 | 0700 | 0.56 | 0.064 | 0.064 | 15.62 | 15.62 | -18.0 | -34.0 | -23.9 | 32.2 | 26.9 | 27.3 |
| 890724 | 1300 | 0.53 | 0.064 | 0.064 | 15.62 | 15.62 | -14.0 | -10.0 | -18.8 | 32.1 | 27.3 | 21.5 |
| 890724 | 1900 | 0.59 | 0.074 | 0.064 | 13.57 | 15.62 | -12.0 | -14.0 | -21.8 | 30.5 | 25.0 | 20.1 |
| 890725 | 0100 | 0.55 | 0.064 | 0.064 | 15.62 | 15.62 | -14.0 | -12.0 | -18.7 | 27.5 | 25.7 | 22.7 |
| 890725 | 0700 | 0.57 | 0.074 | 0.074 | 13.57 | 13.57 | -16.0 | -16.0 | -18.1 | 26.7 | 24.8 | 23.1 |
| 890725 | 1300 | 0.59 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -8.0 | -20.3 | 30.1 | 29.1 | 21.9 |
| 890725 | 1900 | 0.62 | 0.074 | 0.074 | 13.57 | 13.57 | -12.0 | -14.0 | -24.7 | 26.1 | 24.5 | 21.5 |
| 890726 | 0100 | 0.72 | 0.142 | 0.142 | 7.04 | 7.04 | -28.0 | -28.0 | -26.2 | 24.3 | 23.6 | 19.2 |
| 890726 | 0700 | 0.78 | 0.123 | 0.123 | 8.16 | 8.16 | -30.0 | -14.0 | -18.3 | 26.1 | 24.1 | 23.7 |
| 890726 | 1300 | 0.83 | 0.132 | 0.123 | 7.56 | 8.16 | -16.0 | -14.0 | -13.6 | 22.0 | 21.9 | 16.4 |
| 890726 | 1900 | 0.79 | 0.123 | 0.113 | 8.16 | 8.87 | -14.0 | -16.0 | -17.7 | 21.2 | 20.9 | 18.7 |
| 890727 | 0100 | 0.70 | 0.123 | 0.123 | 8.16 | 8.16 | -20.0 | -20.0 | -20.8 | 23.9 | 23.4 | 20.8 |
| 890727 | 0700 | 0.61 | 0.123 | 0.123 | 8.16 | 8.16 | -30.0 | -14.0 | -20.3 | 23.6 | 22.2 | 21.3 |
| 890727 | 1300 | 0.58 | 0.132 | 0.132 | 7.56 | 7.56 | -24.0 | -25.0 | -23.9 | 26.3 | 25.1 | 22.0 |
| 890727 | 1900 | 0.47 | 0.113 | 0.123 | 8.87 | 8.16 | -34.0 | -14.0 | -25.9 | 24.8 | 22.2 | 21.0 |
| 890728 | 0100 | 0.45 | 0.123 | 0.113 | 8.16 | 8.87 | -34.0 | -16.0 | -27.1 | 26.6 | 23.4 | 22.5 |
| 890728 | 0700 | 0.41 | 0.123 | 0.074 | 8.16 | 13.57 | -34.0 | -34.0 | -23.4 | 25.7 | 24.1 | 19.5 |
| 890728 | 1300 | 0.41 | 0.123 | 0.074 | 8.16 | 13.57 | -32.0 | -28.0 | -24.5 | 27.5 | 22.7 | 19.0 |
| 890728 | 1900 | 0.38 | 0.113 | 0.074 | 8.87 | 13.57 | -36.0 | -36.0 | -28.8 | 28.0 | 22.4 | 23.8 |
| 890729 | 0100 | 0.35 | 0.113 | 0.074 | 8.87 | 13.57 | -32.0 | -26.0 | -24.2 | 28.2 | 28.3 | 18.5 |
| 890729 | 1300 | 1.00 | 0.162 | 0.162 | 6.19 | 6.19 | 34.0 | 30.0 | 33.6 | 20.7 | 20.0 | 13.2 |
| 890729 | 1900 | 0.79 | 0.152 | 0.152 | 6.58 | 6.58 | 32.0 | 30.0 | 32.1 | 26.9 | 24.2 | 14.3 |
| 890730 | 0100 | 0.72 | 0.152 | 0.152 | 6.58 | 6.58 | 18.0 | 20.0 | 20.3 | 22.7 | 20.3 | 16.4 |
| 890730 | 0700 | 0.52 | 0.162 | 0.171 | 6.19 | 5.83 | 32.0 | 32.0 | 15.3 | 48.4 | 25.8 | 24.4 |
| 890730 | 1300 | 0.49 | 0.171 | 0.171 | 5.83 | 5.83 | 34.0 | -22.0 | 6.4 | 46.4 | 32.9 | 41.7 |
| 890730 | 1900 | 0.43 | 0.123 | 0.132 | 8.16 | 7.56 | -32.0 | -30.0 | -6.7 | 43.7 | 36.3 | 34.5 |
| 890731 | 1900 | 0.39 | 0.132 | 0.132 | 7.56 | 7.56 | -38.0 | -38.0 | -32.1 | 41.0 | 38.6 | 34.3 |
| 890801 | 0100 | 0.48 | 0.162 | 0.123 | 6.19 | 8.16 | 10.0 | 10.0 | -5.9 | 37.5 | 29.3 | 21.8 |
| 890801 | 0700 | 0.65 | 0.240 | 0.250 | 4.17 | 4.01 | 42.0 | 32.0 | 19.5 | 41.5 | 20.5 | 15.7 |
| 890801 | 1300 | 0.68 | 0.201 | 0.201 | 4.98 | 4.98 | 12.0 | 14.0 | 10.3 | 32.1 | 21.9 | 16.8 |
| 890801 | 1900 | 0.74 | 0.171 | 0.113 | 5.83 | 8.87 | 20.0 | 22.0 | 11.2 | 32.6 | 24.1 | 10.6 |
| 890802 | 0100 | 0.86 | 0.152 | 0.152 | 6.58 | 6.58 | 14.0 | 14.0 | 13.8 | 19.9 | 21.7 | 11.1 |
| 890802 | 0700 | 0.86 | 0.132 | 0.123 | 7.56 | 8.16 | 16.0 | 16.0 | 14.4 | 18.7 | 17.3 | 14.8 |
| 890802 | 1300 | 0.82 | 0.113 | 0.113 | 8.87 | 8.87 | 0.0 | 12.0 | 7.5 | 18.8 | 15.9 | 15.2 |
| 890802 | 1900 | 0.88 | 0.103 | 0.093 | 9.71 | 10.72 | 2.0 | 2.0 | 7.5 | 21.7 | 20.7 | 12.7 |
| 890803 | 0100 | 0.79 | 0.113 | 0.113 | 8.87 | 8.87 | 2.0 | 10.0 | 9.8 | 24.1 | 21.1 | 15.6 |
| 890803 | 0700 | 0.69 | 0.123 | 0.113 | 8.16 | 8.87 | 12.0 | 10.0 | 6.8 | 22.9 | 23.0 | 19.2 |
| 890803 | 1300 | 0.52 | 0.123 | 0.123 | 8.16 | 8.16 | -2.0 | -2.0 | 0.7 | 28.0 | 25.5 | 20.9 |
| 890803 | 1900 | 0.46 | 0.113 | 0.113 | 8.87 | 8.87 | -8.0 | -10.0 | -8.4 | 29.8 | 30.0 | 30.1 |
| 890804 | 0100 | 0.43 | 0.113 | 0.113 | 8.87 | 8.87 | -16.0 | -16.0 | -9.8 | 27.0 | 27.7 | 25.3 |
| 890804 | 0700 | 0.43 | 0.113 | 0.113 | 8.87 | 8.87 | 6.0 | 4.0 | -4.2 | 29.6 | 30.0 | 25.5 |
| 890804 | 1300 | 0.39 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | 2.0 | -10.1 | 32.3 | 33.3 | 36.8 |
| 890804 | 1900 | 0.48 | 0.093 | 0.103 | 10.72 | 9.71 | -10.0 | -10.0 | -15.5 | 31.7 | 30.3 | 21.6 |

(Continued)

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(Continued)

| Date | Time | H ₃₀ EST m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|-----------------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | θ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{FD} deg |
| 890805 | 0100 | 0.48 | 0.103 | 0.103 | 9.71 | 9.71 | -2.0 | -8.0 | -21.5 | 34.0 | 30.0 | 25.1 |
| 890805 | 0700 | 0.48 | 0.074 | 0.074 | 13.57 | 13.57 | -34.0 | -4.0 | -24.8 | 36.2 | 31.4 | 24.7 |
| 890805 | 1300 | 0.53 | 0.083 | 0.083 | 11.98 | 11.98 | -28.0 | -28.0 | -28.0 | 29.1 | 23.5 | 15.4 |
| 890805 | 1900 | 0.60 | 0.093 | 0.093 | 10.72 | 10.72 | -34.0 | -34.0 | -33.7 | 29.9 | 27.0 | 20.5 |
| 890806 | 0100 | 0.58 | 0.093 | 0.093 | 10.72 | 10.72 | -32.0 | -32.0 | -33.7 | 26.5 | 24.6 | 22.7 |
| 890806 | 0700 | 0.59 | 0.093 | 0.093 | 10.72 | 10.72 | -34.0 | -34.0 | -28.4 | 27.6 | 22.4 | 16.2 |
| 890806 | 1300 | 0.68 | 0.083 | 0.083 | 11.98 | 11.98 | -30.0 | -32.0 | -32.0 | 17.5 | 18.4 | 8.2 |
| 890806 | 1900 | 0.79 | 0.083 | 0.083 | 11.98 | 11.98 | -38.0 | -36.0 | -36.0 | 20.8 | 21.6 | 14.9 |
| 890807 | 0100 | 0.88 | 0.064 | 0.064 | 15.62 | 15.62 | -22.0 | -22.0 | -28.8 | 16.8 | 17.2 | 10.6 |
| 890807 | 0700 | 1.27 | 0.064 | 0.064 | 15.62 | 15.62 | -18.0 | -22.0 | -22.6 | 14.6 | 16.5 | 10.0 |
| 890807 | 1900 | 1.05 | 0.083 | 0.083 | 11.98 | 11.98 | -22.0 | -22.0 | -21.7 | 16.7 | 16.4 | 11.3 |
| 890808 | 0100 | 1.87 | 0.171 | 0.181 | 5.83 | 5.52 | 38.0 | 48.0 | 27.1 | 39.5 | 16.6 | 12.2 |
| 890808 | 0400 | 1.91 | 0.171 | 0.171 | 5.83 | 5.83 | 36.0 | 38.0 | 25.5 | 29.2 | 16.8 | 10.8 |
| 890808 | 0700 | 1.82 | 0.152 | 0.162 | 6.58 | 6.19 | 28.0 | 34.0 | 26.4 | 28.8 | 17.9 | 13.9 |
| 890808 | 1900 | 1.04 | 0.152 | 0.113 | 6.58 | 8.87 | 32.0 | 32.0 | 13.6 | 35.9 | 21.7 | 18.1 |
| 890809 | 0100 | 0.85 | 0.162 | 0.113 | 6.19 | 8.87 | 30.0 | 28.0 | 11.5 | 36.7 | 23.9 | 18.7 |
| 890809 | 0700 | 0.82 | 0.123 | 0.123 | 8.16 | 8.16 | -14.0 | 18.0 | 6.6 | 38.5 | 28.3 | 18.5 |
| 890809 | 1300 | 0.85 | 0.113 | 0.220 | 8.87 | 4.54 | -14.0 | -18.0 | -17.5 | 36.1 | 37.7 | 19.5 |
| 890809 | 1900 | 1.27 | 0.220 | 0.201 | 4.54 | 4.98 | 42.0 | 20.0 | 15.0 | 48.2 | 28.0 | 26.2 |
| 890810 | 0100 | 1.69 | 0.171 | 0.171 | 5.83 | 5.83 | -6.0 | -12.0 | 0.0 | 31.7 | 24.7 | 21.7 |
| 890810 | 0400 | 1.78 | 0.152 | 0.152 | 6.58 | 6.58 | -12.0 | -10.0 | -0.5 | 32.5 | 28.0 | 18.3 |
| 890810 | 0700 | 1.74 | 0.142 | 0.152 | 7.04 | 6.58 | -20.0 | -10.0 | 15.7 | 38.8 | 32.2 | 17.2 |
| 890810 | 1300 | 1.41 | 0.132 | 0.162 | 7.56 | 6.19 | -14.0 | -14.0 | 17.2 | 42.6 | 38.4 | 18.8 |
| 890810 | 1900 | 1.26 | 0.152 | 0.152 | 6.58 | 6.58 | 32.0 | 30.0 | 23.8 | 34.4 | 31.6 | 33.6 |
| 890811 | 0100 | 1.07 | 0.152 | 0.152 | 6.58 | 6.58 | 28.0 | 14.0 | 17.1 | 41.5 | 38.8 | 43.9 |
| 890811 | 0700 | 0.84 | 0.123 | 0.152 | 8.16 | 6.58 | 0.0 | 0.0 | 14.2 | 43.0 | 41.3 | 13.3 |
| 890811 | 1300 | 0.82 | 0.132 | 0.142 | 7.56 | 7.04 | 4.0 | 2.0 | -17.9 | 40.9 | 40.4 | 23.5 |
| 890811 | 1900 | 0.76 | 0.152 | 0.152 | 6.58 | 6.58 | -44.0 | -20.0 | -30.0 | 44.7 | 39.4 | 39.8 |
| 890812 | 0100 | 0.68 | 0.113 | 0.132 | 8.87 | 7.56 | -4.0 | -4.0 | -24.8 | 36.6 | 36.1 | 8.1 |
| 890812 | 0700 | 0.67 | 0.132 | 0.152 | 7.56 | 6.58 | 0.0 | -4.0 | -28.6 | 38.3 | 32.4 | 18.9 |
| 890812 | 1300 | 0.84 | 0.152 | 0.152 | 6.58 | 6.58 | -20.0 | -30.0 | -35.8 | 29.9 | 24.4 | 17.9 |
| 890812 | 1900 | 0.74 | 0.162 | 0.142 | 6.19 | 7.04 | -48.0 | -48.0 | -35.9 | 34.3 | 22.7 | 25.5 |
| 890813 | 0100 | 0.74 | 0.152 | 0.152 | 6.58 | 6.58 | -14.0 | -16.0 | -32.9 | 32.1 | 28.9 | 16.9 |
| 890813 | 1300 | 0.58 | 0.152 | 0.142 | 6.58 | 7.04 | -46.0 | -48.0 | -31.6 | 44.5 | 35.3 | 41.0 |
| 890813 | 1900 | 0.54 | 0.142 | 0.142 | 7.04 | 7.04 | -16.0 | -14.0 | -29.4 | 35.8 | 34.0 | 32.6 |
| 890814 | 0100 | 0.63 | 0.142 | 0.142 | 7.04 | 7.04 | -16.0 | -10.0 | -18.6 | 30.9 | 32.3 | 28.5 |
| 890814 | 0700 | 0.54 | 0.132 | 0.132 | 7.56 | 7.56 | -40.0 | -42.0 | -34.4 | 35.1 | 33.7 | 31.3 |
| 890814 | 1300 | 0.60 | 0.142 | 0.132 | 7.04 | 7.56 | -12.0 | -10.0 | -28.5 | 31.8 | 31.8 | 32.4 |
| 890814 | 1900 | 0.61 | 0.142 | 0.142 | 7.04 | 7.04 | -46.0 | -44.0 | -32.5 | 34.9 | 33.1 | 26.9 |
| 890815 | 0100 | 0.65 | 0.142 | 0.132 | 7.04 | 7.56 | -46.0 | -36.0 | -39.1 | 31.5 | 29.0 | 23.2 |
| 890815 | 1300 | 0.76 | 0.113 | 0.152 | 8.87 | 6.58 | -20.0 | -32.0 | -35.1 | 27.8 | 27.5 | 19.7 |
| 890815 | 1900 | 0.67 | 0.142 | 0.142 | 7.04 | 7.04 | -34.0 | -34.0 | -38.0 | 28.7 | 27.1 | 21.6 |
| 890816 | 0100 | 0.60 | 0.142 | 0.142 | 7.04 | 7.04 | -38.0 | -38.0 | -35.3 | 29.0 | 27.1 | 24.8 |
| 890816 | 0700 | 0.57 | 0.142 | 0.142 | 7.04 | 7.04 | -40.0 | -24.0 | -29.9 | 33.1 | 32.5 | 27.2 |
| 890816 | 1300 | 0.58 | 0.132 | 0.142 | 7.56 | 7.04 | -10.0 | -8.0 | -20.0 | 27.0 | 26.5 | 23.2 |
| 890816 | 1900 | 0.57 | 0.132 | 0.142 | 7.56 | 7.04 | -20.0 | -20.0 | -29.3 | 28.9 | 27.1 | 21.2 |
| 890817 | 0100 | 0.63 | 0.132 | 0.132 | 7.56 | 7.56 | -28.0 | -18.0 | -33.7 | 25.3 | 25.9 | 16.4 |
| 890817 | 0700 | 0.72 | 0.132 | 0.132 | 7.56 | 7.56 | -34.0 | -14.0 | -25.4 | 29.6 | 28.7 | 27.1 |
| 890817 | 1300 | 0.59 | 0.142 | 0.142 | 7.04 | 7.04 | -36.0 | -36.0 | -27.8 | 27.3 | 24.6 | 23.5 |

(Continued)

(Sheet 28 of 30)

(Continued)

| Date | Time | H ₃₀ m | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|----------------------|-------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|--------------------------|-------------------------|--------------------------|
| | | | f _{p,FD} Hz | f _{p,IFS} Hz | T _{p,FD} sec | T _{p,IFS} sec | θ _{p,FD} deg | ψ _{p,IDS} deg | θ _{p,SW} deg | Δθ _{IDS} deg | Δθ _{SW} deg | Δθ _{DFP} deg |
| 890817 | 1900 | 0.59 | 0.132 | 0.132 | 7.56 | 7.56 | -10.0 | -8.0 | -24.1 | 33.5 | 29.9 | 28.0 |
| 890818 | 0700 | 0.64 | 0.103 | 0.103 | 9.71 | 9.71 | -4.0 | -2.0 | -2.3 | 38.2 | 38.1 | 17.3 |
| 890818 | 1900 | 0.68 | 0.191 | 0.074 | 5.24 | 13.57 | 40.0 | 40.0 | 4.4 | 56.6 | 30.4 | 8.2 |
| 890819 | 0700 | 0.73 | 0.152 | 0.171 | 6.58 | 5.83 | -46.0 | -46.0 | -27.4 | 58.3 | 54.4 | 36.5 |
| 890819 | 1000 | 0.65 | 0.162 | 0.152 | 6.19 | 6.58 | 34.0 | 32.0 | 16.5 | 57.3 | 44.8 | 15.0 |
| 890820 | 0700 | 0.56 | 0.142 | 0.083 | 7.04 | 11.98 | 14.0 | 14.0 | -15.9 | 45.3 | 30.9 | 14.0 |
| 890820 | 1300 | 0.55 | 0.093 | 0.083 | 10.72 | 11.98 | -30.0 | -30.0 | -32.7 | 37.7 | 35.3 | 21.1 |
| 890820 | 1900 | 0.65 | 0.103 | 0.093 | 9.71 | 10.72 | -34.0 | -34.0 | -35.7 | 22.0 | 20.8 | 14.4 |
| 890821 | 0100 | 0.60 | 0.093 | 0.093 | 10.72 | 10.72 | -32.0 | -32.0 | -34.6 | 19.0 | 17.8 | 12.8 |
| 890821 | 0700 | 0.62 | 0.103 | 0.103 | 9.71 | 9.71 | -34.0 | -34.0 | -34.9 | 19.5 | 18.5 | 9.3 |
| 890821 | 1300 | 0.55 | 0.103 | 0.103 | 9.71 | 9.71 | -36.0 | -36.0 | -35.3 | 19.3 | 17.8 | 17.0 |
| 890821 | 1900 | 0.56 | 0.113 | 0.113 | 8.87 | 8.87 | -34.0 | -34.0 | -34.2 | 17.6 | 15.1 | 12.8 |
| 890822 | 0100 | 0.46 | 0.113 | 0.113 | 8.87 | 8.87 | -30.0 | -38.0 | -33.4 | 17.5 | 15.6 | 12.1 |
| 890822 | 0700 | 0.44 | 0.113 | 0.113 | 8.87 | 8.87 | -32.0 | -32.0 | -31.1 | 17.7 | 15.8 | 11.8 |
| 890822 | 1300 | 0.39 | 0.113 | 0.113 | 8.87 | 8.87 | -34.0 | -36.0 | -35.2 | 21.5 | 19.1 | 12.2 |
| 890822 | 1900 | 0.36 | 0.123 | 0.123 | 8.16 | 8.16 | -30.0 | -32.0 | -33.5 | 18.6 | 18.3 | 11.6 |
| 890823 | 0100 | 0.33 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -34.0 | -34.0 | 22.4 | 20.5 | 13.0 |
| 890823 | 0700 | 0.34 | 0.123 | 0.123 | 8.16 | 8.16 | -38.0 | -38.0 | -37.5 | 20.8 | 20.2 | 14.4 |
| 890823 | 1300 | 0.32 | 0.123 | 0.113 | 8.16 | 8.87 | -38.0 | -38.0 | -36.5 | 23.9 | 20.2 | 10.9 |
| 890823 | 1900 | 0.36 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -36.0 | -35.3 | 21.7 | 21.5 | 11.5 |
| 890824 | 0100 | 0.40 | 0.113 | 0.113 | 8.87 | 8.87 | -36.0 | -36.0 | -32.8 | 23.4 | 20.4 | 13.5 |
| 890824 | 0700 | 0.41 | 0.103 | 0.103 | 9.71 | 9.71 | -36.0 | -36.0 | -30.6 | 27.5 | 21.3 | 21.0 |
| 890824 | 1300 | 0.54 | 0.074 | 0.074 | 13.57 | 13.57 | -10.0 | 48.0 | 0.6 | 74.0 | 20.4 | 16.2 |
| 890824 | 1900 | 0.70 | 0.074 | 0.074 | 13.57 | 13.57 | -14.0 | 32.0 | 15.6 | 50.6 | 18.5 | 13.2 |
| 890825 | 0100 | 0.77 | 0.181 | 0.083 | 5.52 | 11.98 | 30.0 | 32.0 | 7.8 | 47.1 | 16.7 | 7.5 |
| 890825 | 0700 | 0.81 | 0.064 | 0.083 | 15.62 | 11.98 | -6.0 | 34.0 | 11.9 | 41.4 | 19.1 | 9.4 |
| 890825 | 1300 | 0.98 | 0.083 | 0.191 | 11.98 | 5.24 | -16.0 | 16.0 | 6.5 | 31.6 | 23.5 | 14.2 |
| 890826 | 0100 | 0.85 | 0.083 | 0.083 | 11.98 | 11.98 | -10.0 | -4.0 | -6.6 | 28.7 | 23.5 | 21.7 |
| 890826 | 1300 | 0.82 | 0.083 | 0.083 | 11.98 | 11.98 | -22.0 | -4.0 | -8.8 | 32.9 | 29.3 | 25.0 |
| 890826 | 1900 | 0.76 | 0.083 | 0.083 | 11.98 | 11.98 | -22.0 | -22.0 | -8.3 | 32.6 | 29.3 | 26.5 |
| 890827 | 0100 | 0.72 | 0.083 | 0.083 | 11.98 | 11.98 | -20.0 | -4.0 | -5.6 | 28.9 | 28.2 | 21.8 |
| 890827 | 0700 | 0.64 | 0.083 | 0.083 | 11.98 | 11.98 | -20.0 | -18.0 | -16.6 | 25.3 | 25.1 | 21.7 |
| 890827 | 1300 | 0.59 | 0.083 | 0.083 | 11.98 | 11.98 | -22.0 | -18.0 | -19.6 | 23.5 | 24.9 | 21.4 |
| 890827 | 1900 | 0.55 | 0.093 | 0.093 | 10.72 | 10.72 | -14.0 | -14.0 | -16.9 | 22.6 | 21.4 | 12.7 |
| 890828 | 0100 | 0.55 | 0.093 | 0.093 | 10.72 | 10.72 | -14.0 | -14.0 | -17.7 | 25.5 | 21.9 | 16.0 |
| 890828 | 0700 | 0.50 | 0.093 | 0.093 | 10.72 | 10.72 | -12.0 | -12.0 | -17.5 | 28.6 | 23.2 | 15.4 |
| 890828 | 1300 | 0.49 | 0.113 | 0.113 | 8.87 | 8.87 | -34.0 | -18.0 | -18.4 | 26.4 | 24.8 | 19.7 |
| 890828 | 1900 | 0.50 | 0.171 | 0.083 | 5.83 | 11.98 | -40.0 | -24.0 | -25.5 | 25.5 | 23.2 | 21.1 |
| 890829 | 0100 | 0.48 | 0.162 | 0.083 | 6.19 | 11.98 | -38.0 | -22.0 | -22.3 | 25.3 | 23.3 | 18.3 |
| 890829 | 0700 | 0.44 | 0.083 | 0.083 | 11.98 | 11.98 | -18.0 | -18.0 | -19.5 | 25.7 | 26.1 | 24.5 |
| 890829 | 1900 | 0.42 | 0.093 | 0.093 | 10.72 | 10.72 | -16.0 | -16.0 | -28.2 | 28.4 | 22.8 | 20.5 |
| 890830 | 0100 | 0.36 | 0.093 | 0.093 | 10.72 | 10.72 | -30.0 | -18.0 | -29.4 | 24.9 | 20.8 | 22.1 |
| 890830 | 0700 | 0.35 | 0.093 | 0.093 | 10.72 | 10.72 | -32.0 | -32.0 | -32.2 | 26.9 | 25.9 | 23.4 |
| 890830 | 1300 | 0.36 | 0.103 | 0.093 | 9.71 | 10.72 | -24.0 | -18.0 | -28.6 | 22.0 | 22.1 | 15.8 |
| 890830 | 1900 | 0.36 | 0.093 | 0.093 | 10.72 | 10.72 | -18.0 | -16.0 | -22.4 | 23.8 | 24.4 | 17.5 |
| 890830 | 2200 | 0.36 | 0.093 | 0.093 | 10.72 | 10.72 | -30.0 | -30.0 | -28.5 | 24.1 | 24.6 | 22.4 |
| 890831 | 0100 | 0.36 | 0.093 | 0.093 | 10.72 | 10.72 | -32.0 | -32.0 | -25.1 | 22.9 | 23.7 | 21.1 |

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(Concluded)

| Date | Time | H _{ms} | Peak Frequency | | Peak Period | | Peak Direction | | | Directional Spread | | |
|--------|------|-----------------|----------------|-------------|-------------|-------------|-----------------|------------------|-----------------|----------------------|---------------------|----------------------|
| | | | $f_{p,FD}$ | $f_{p,IFS}$ | $T_{p,FD}$ | $T_{p,IFS}$ | $\theta_{p,FD}$ | $\theta_{p,IDS}$ | $\theta_{p,SW}$ | $\Delta\theta_{IDS}$ | $\Delta\theta_{SW}$ | $\Delta\theta_{FDE}$ |
| | EST | m | Hz | Hz | sec | sec | deg | deg | deg | deg | deg | deg |
| 890831 | 0400 | 0.37 | 0.093 | 0.093 | 10.72 | 10.72 | -28.0 | -28.0 | -25.7 | 21.8 | 22.6 | 16.7 |
| 890831 | 0700 | 0.66 | 0.240 | 0.240 | 4.17 | 4.17 | 54.0 | 60.0 | 33.7 | 64.4 | 19.5 | 15.4 |
| 890831 | 1300 | 0.75 | 0.201 | 0.201 | 4.98 | 4.98 | 44.0 | 38.0 | 30.1 | 46.1 | 20.6 | 16.8 |
| 890831 | 1900 | 0.61 | 0.191 | 0.093 | 5.24 | 10.72 | 44.0 | 42.0 | 10.1 | 56.3 | 21.2 | 13.9 |

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Appendix B: Time Series Graphs of Bulk Spectral Parameters,
Wind Vector, and Current Vector

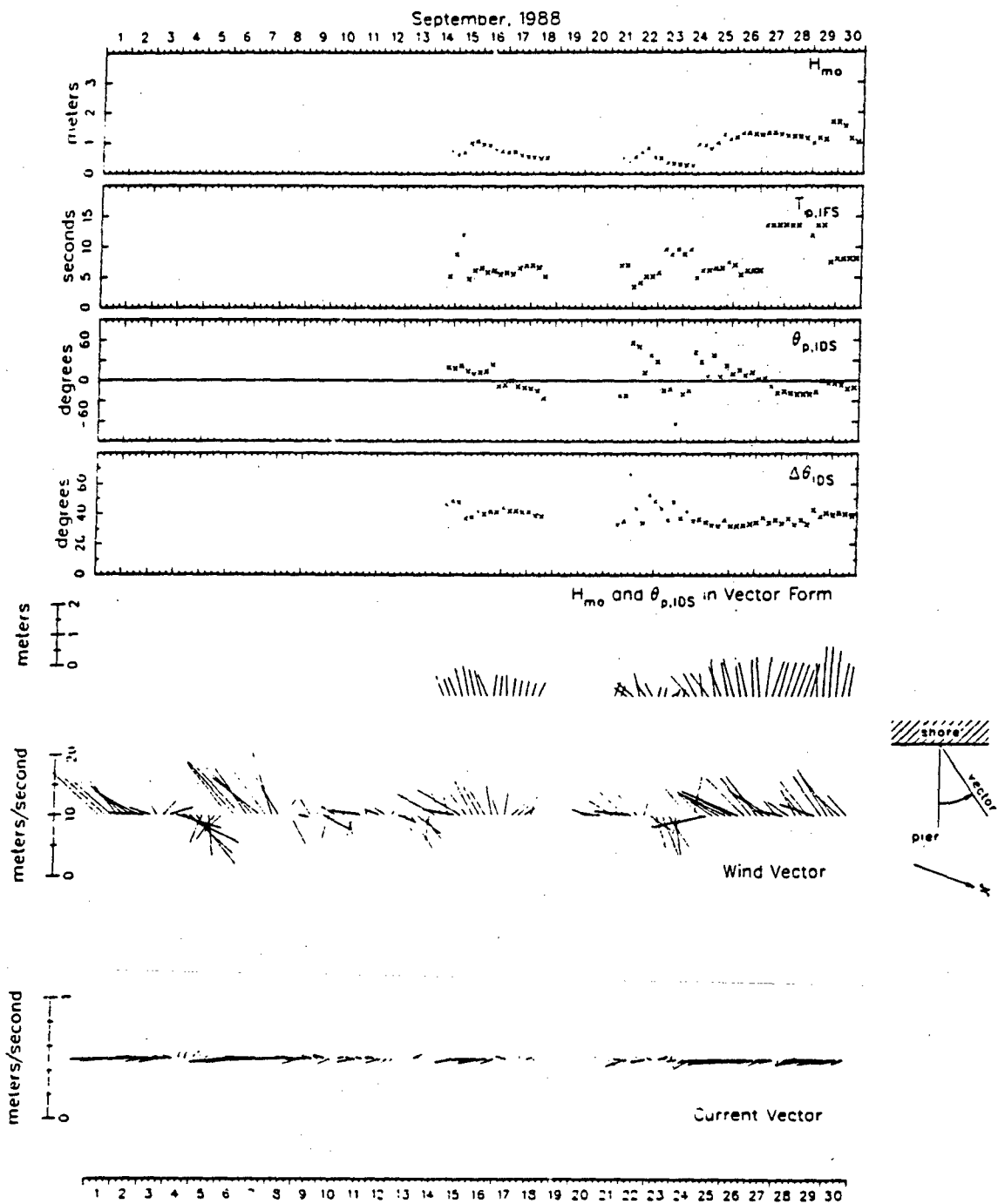


Figure B1. Bulk data for September 1988

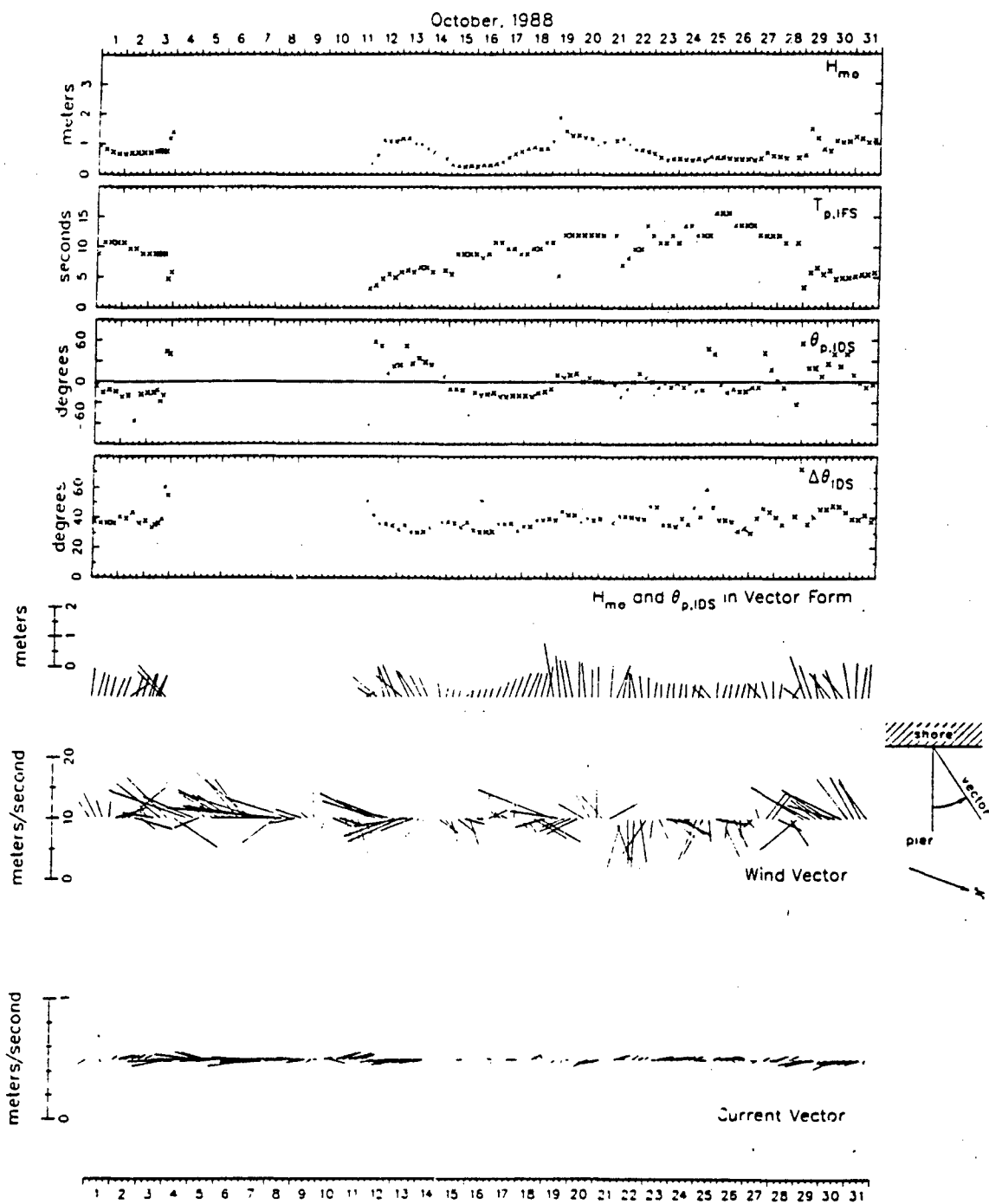


Figure B2. Bulk data for October 1988

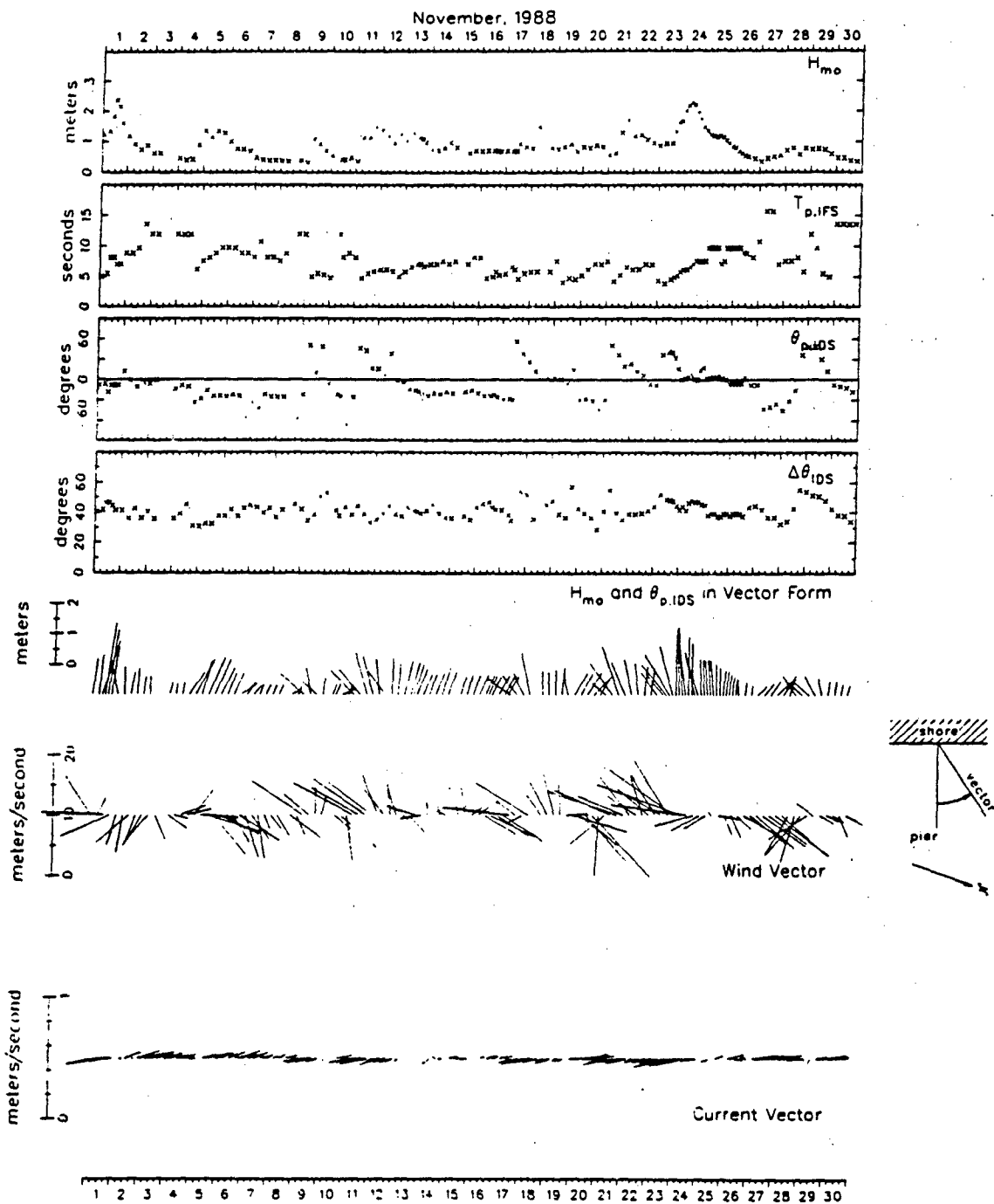


Figure B3. Bulk data for November 1988

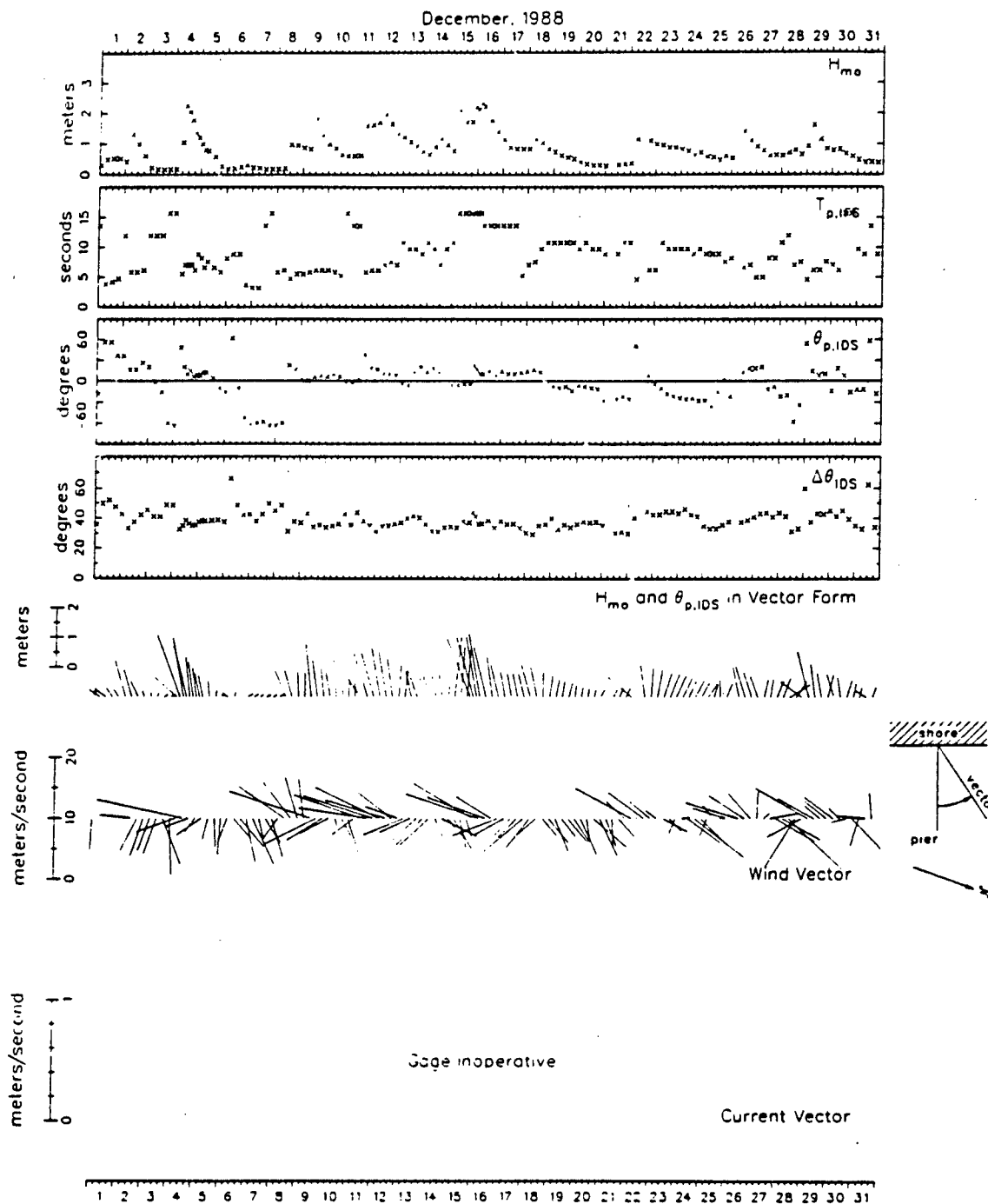


Figure B4. Bulk data for December 1988

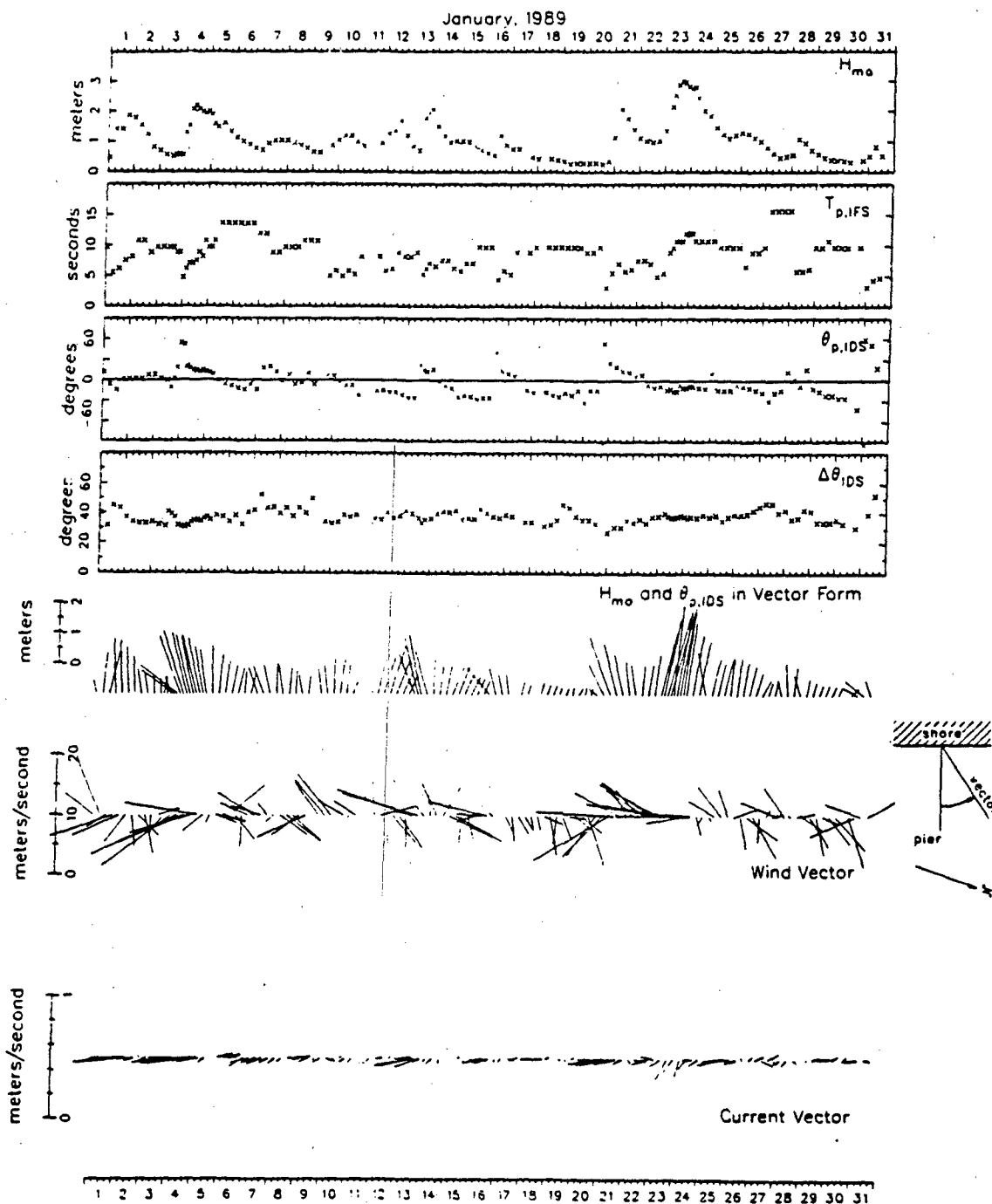


Figure B5. Bulk data for January 1989

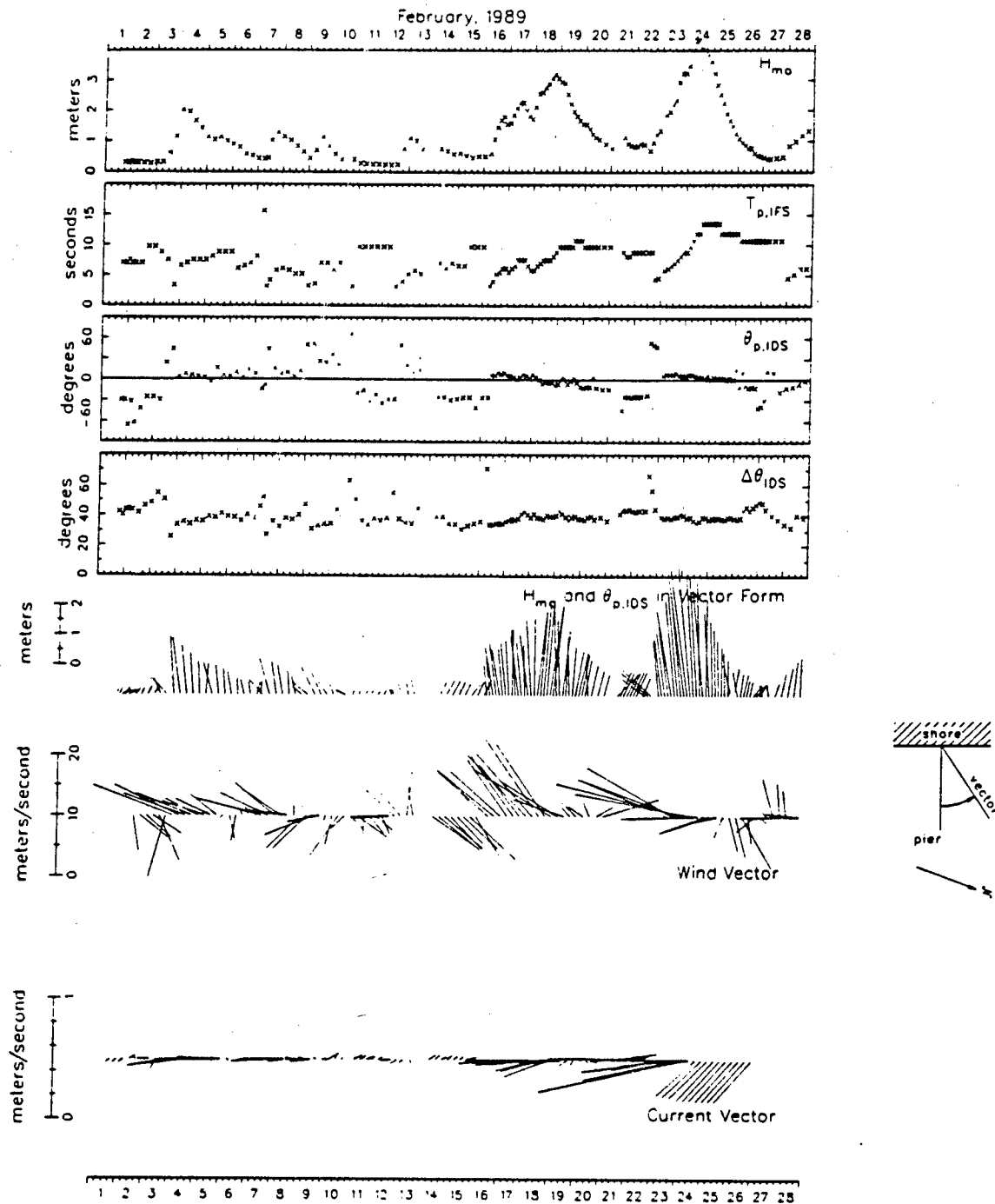


Figure B6. Bulk data for February 1989

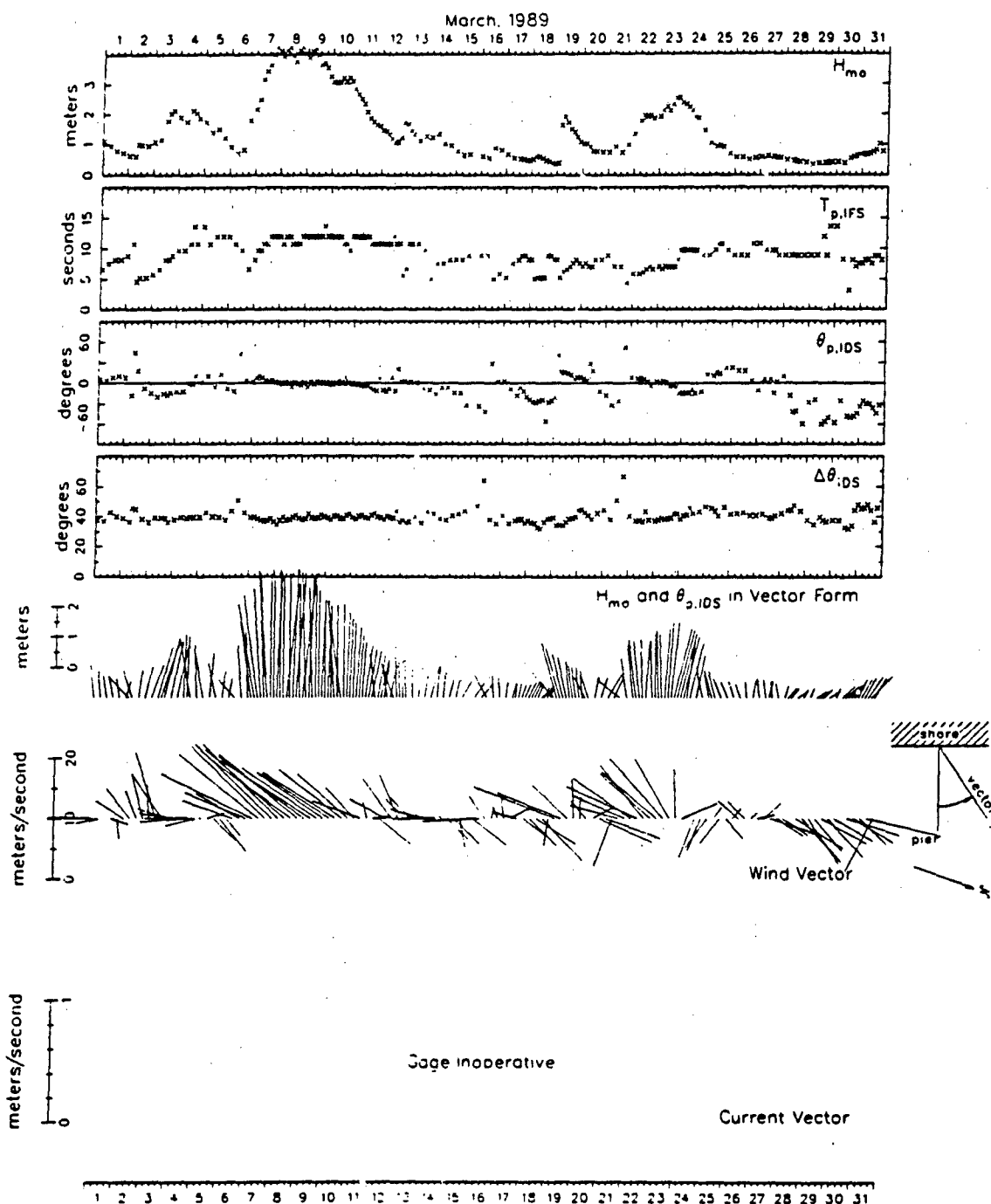


Figure B7. Bulk data for March 1989

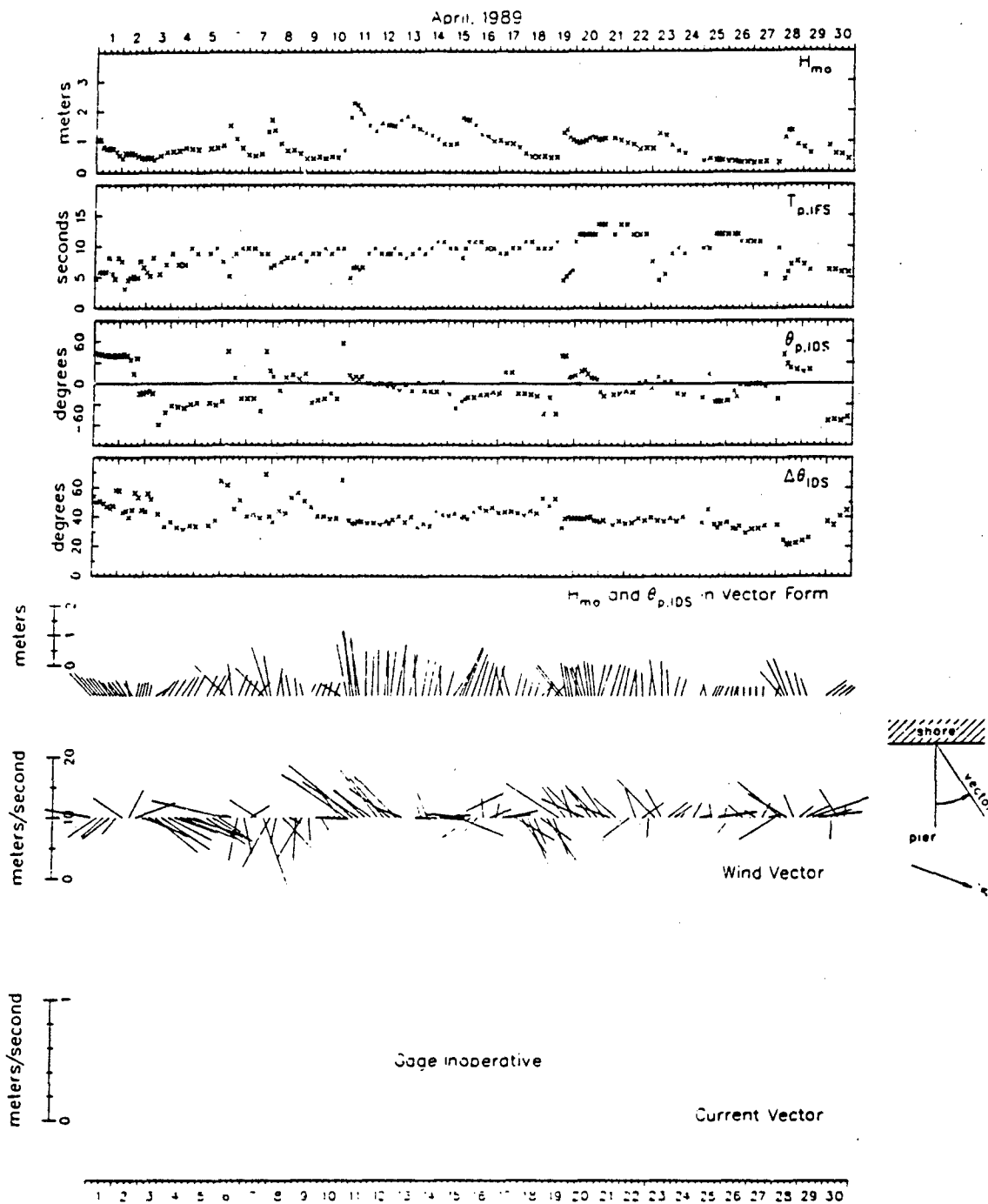


Figure B8. Bulk data for April 1989

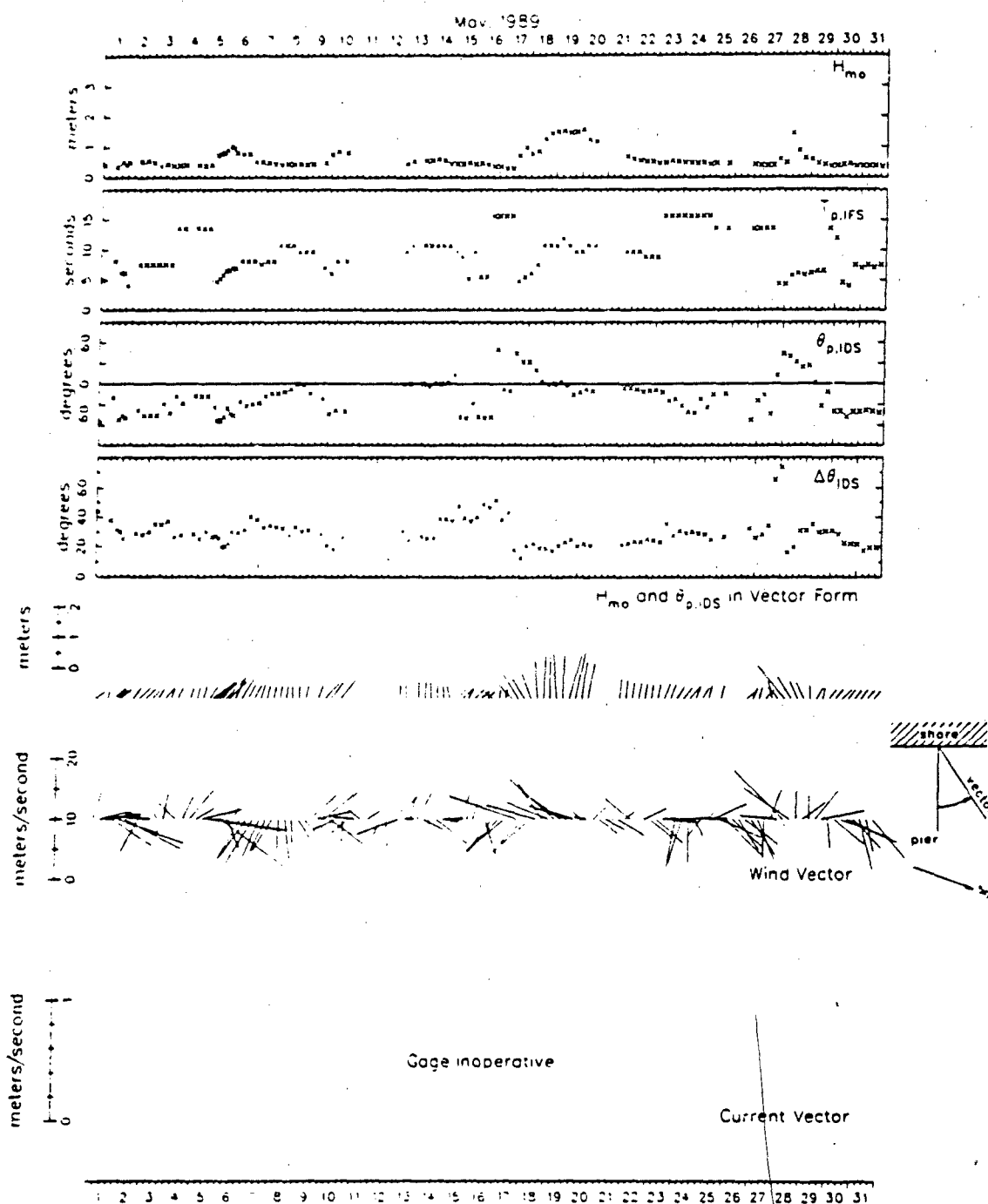


Figure B9. Bulk data for May 1989

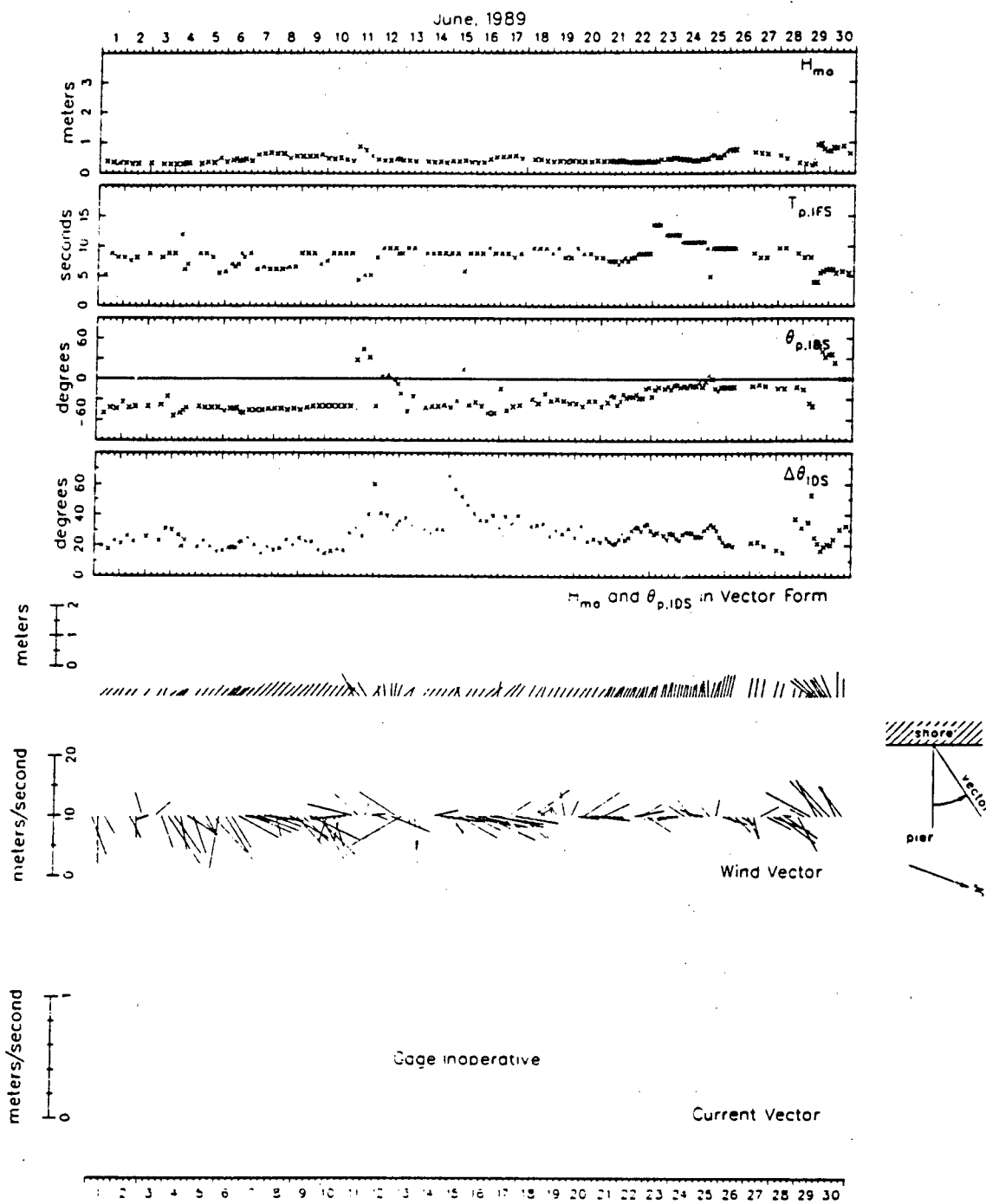


Figure B10. Bulk data for June 1989

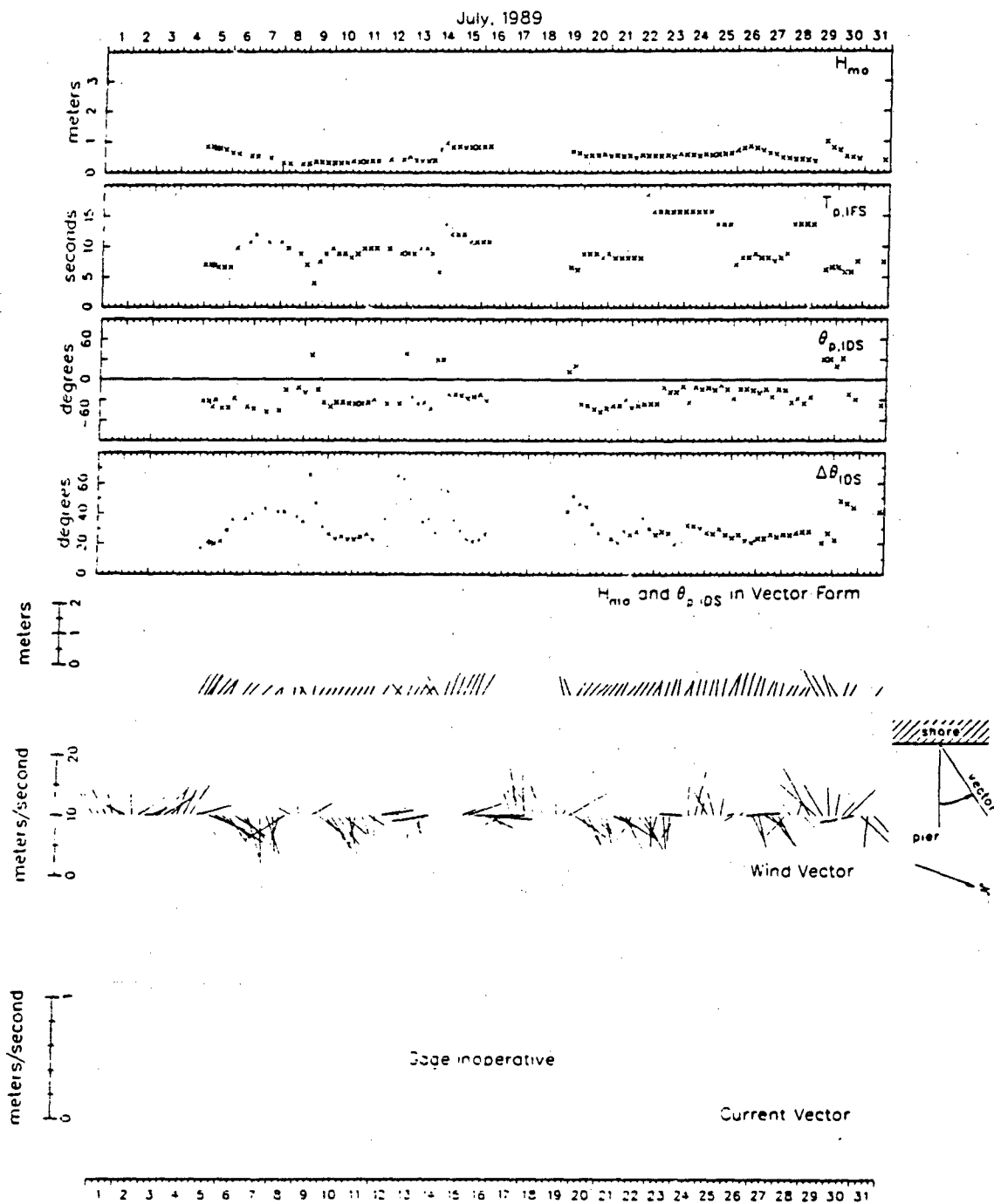


Figure B11. Bulk data for July 1989

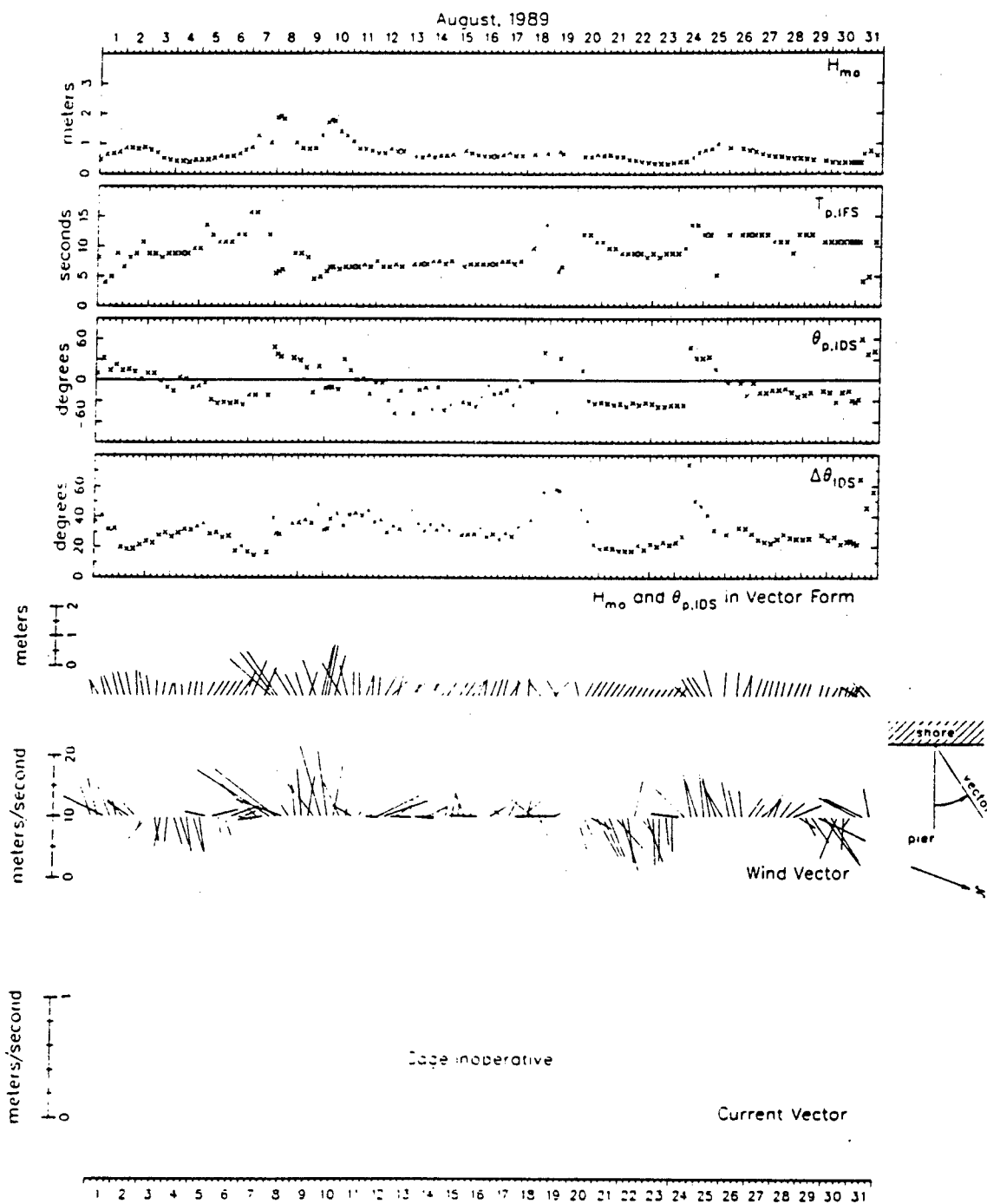


Figure B12. Bulk data for August 1989

Appendix C: Listing of FORTRAN Computer Program

```

0001      PROGRAM READUM
0002 C*****
0003 C   This program illustrates DIMENSION and FORMAT definitions nec- *
0004 C   essary to read wave energy frequency-direction spectral data *
0005 C   files representing measurements made with a high resolution lin- *
0006 C   ear array directional wave gage at the USAE/WES/CERC Field *
0007 C   Research Facility in Duck, NC. *
0008 C   The program is written in FORTRAN-77 and should be universal in *
0009 C   that sense. However, it uses VAX 11/750 file access statements *
0010 C   ('OPEN' and 'CLOSE') to open data files for reading. It is like- *
0011 C   ly that some changes will be necessary to read data files which *
0012 C   have been transferred to another system. *
0013 C   The data files themselves are ASCII formatted with 80-column *
0014 C   records. *
0015 C   Variables are listed and defined below. A distinction is made *
0016 C   between 'universal' and 'system-dependent' variables to help *
0017 C   in adapting this code to another system. *
0018 C *
0019 C -----
0020 C          VARIABLE LIST
0021 C .....
0022 C          -----
0023 C          .OO[ UNIVERSAL VARIABLES ]OO.
0024 C          -----
0025 C
0026 C          NAME                      MEANING
0027 C          -----
0028 C
0029 C          IEM....[CHARACTER*4] Start time of a 2 hr 16 min collec- *
0030 C          tion. It has the form hhmm where hh is hour *
0031 C          (24-hour clock) and mm is minute. Time base is *
0032 C          Eastern Standard Time. *
0033 C
0034 C          IYMD....[CHARACTER*6] Start year, month and day of a collec- *
0035 C          tion. It has the form yyymmdd where yy is year, *
0036 C          mm is month and dd is day. For example, 861012 *
0037 C          is 12 October 1986. *
0038 C
0039 C          GPAT....[CHARACTER*9] Nine-character string representing the *
0040 C          pattern of operating gages by showing gage identifi- *
0041 C          cation numbers in sequence from north to south and *
0042 C          indicating malfunctioning gages by a minus sign. If *
0043 C          all nine gages are working, the pattern is 987123456. *
0044 C          If, for example, gage 7 was malfunctioning, the pat- *
0045 C          tern becomes 98-123456 and data will have been pro- *
0046 C          cessed as if gage 7 did not exist. Accuracy is de- *
0047 C          graded slightly but results are still valid. *
0048 C
0049 C          DEPTH....[REAL, in meters] Mean total water depth at the lin- *
0050 C          ear array during a 2 hr 16 min collection. *
0051 C
0052 C          NF....[INTEGER] Number of frequency bands in the discrete *
0053 C          spectral representations. *
0054 C
0055 C          ND.....[INTEGER] Number of direction bands in the discrete *
0056 C          spectral representations. *
0057 C
0058 C          D(J)....[REAL, in degrees] J'th element of array represent- *
0059 C          ing wave direction, which is the direction from *
0060 C          which waves are coming counterclockwise from shore *
0061 C          normal; 0.0 degrees is shore normal, positive *
0062 C          angles are for waves from the northeast quadrant, *
0063 C          negative angles are for southeast quadrant. Direc- *
0064 C          tions are considered to reside in the centers of *
0065 C          discrete direction bands (or bins or arcs). *
0066 C

```

```

0067 C DS(J).....[REAL, in meters squared per degree] J'th element *
0068 C of array representing direction spectrum. This is *
0069 C the directional analogy of the frequency spectrum, *
0070 C being the integral of the frequency-direction spec- *
0071 C trum over all frequencies (in the analysis pass *
0072 C band) of sea surface displacement variance in each *
0073 C direction band. *
0074 C *
0075 C F(N).....[REAL, in Hertz] N'th element of array representing *
0076 C frequency. Considered the center frequency of a *
0077 C discrete frequency band. *
0078 C *
0079 C FS(N).....[REAL, in meters squared per Hertz] N'th element of *
0080 C array representing the frequency spectrum. Here, it *
0081 C is the integral of the frequency-direction spectrum *
0082 C over all directions in each frequency band. It is *
0083 C the same as the conventional frequency spectrum that *
0084 C one would get with a single time series. *
0085 C *
0086 C DD(N,J).....[REAL, in 1/degrees] Element at N'th frequency and *
0087 C J'th direction of an entity known as the directional *
0088 C distribution function. It is defined as the ratio *
0089 C of the frequency-direction spectrum to the frequency *
0090 C spectrum at each frequency for all directions, i.e., *
0091 C *
0092 C DD(N,J) = FDS(N,J)/FS(N) *
0093 C *
0094 C The directional distribution is convenient in sever- *
0095 C al ways for normalizing the frequency-direction *
0096 C spectrum, but note that it is physically meaningful *
0097 C only for a fixed frequency (N = constant) since a *
0098 C different normalizing factor is used at each fre- *
0099 C quency. *
0100 C *
0101 C FDS(N,J).....[REAL, in meters squared per Hertz per degree] Fre- *
0102 C quency-direction spectral density of sea surface *
0103 C displacement at frequency F(N) and direction D(J). *
0104 C It is determined from the input data by the compu- *
0105 C tation of *
0106 C *
0107 C FDS(N,J) = FS(N)*DD(J,J) *
0108 C *
0109 C ----- *
0110 C *
0111 C ----- *
0112 C .OO( SYSTEM-DEPENDENT VARIABLES )OO. *
0113 C ----- *
0114 C *
0115 C DATETIME.....[CHARACTER*10] Ten-character string requested of *
0116 C default input device. It contains year, month, day, *
0117 C hour and minute in the form yymmddhhmm and is used *
0118 C to for. the name of an input file. *
0119 C *
0120 C DATAFILE.....[CHARACTER*16] String representing input file name *
0121 C in an 'OPEN' statement. *
0122 C *
0123 C*****RIDES FAST HORSES, JAN92*****
0124 CHARACTER*4 IEM
0125 CHARACTER*6 IYMD
0126 CHARACTER*9 GPAT
0127 CHARACTER*10 DATETIME
0128 CHARACTER*16 DATAFILE
0129 DIMENSION F(28), FS(28), D(91), DS(91)
0130 DIMENSION DD(28,91), FDS(28,91)
0131 C*****
0132 C SET GENERIC DATAFILE NAME, GET SPECIFIC DATE AND TIME FROM USER *
0133 C AND SET SPECIFIC DATAFILE NAME. *
0134 C*****

```

```

0135      DATAFILE='FDyyymmddhhmm.DAT'          !GENERIC FILE NAME
0136      WRITE(*,'(1X,
0137      1  ''Enter Date/Time Code (yyymmddhhmm)....: '' ,
0138      2  $)')          !PROMPT USER
0139      READ(*,'(A)') DATETIME          !GET USER RESPONSE
0140      DATAFILE(3:12)=DATETIME          !SET FILE NAME
0141      C*****
0142      C OPEN DATA FILE, READ FORMATTED DATA AND CLOSE DATA FILE. NOTE: *
0143      C THE VARIABLE 'NN' IS THE FREQUENCY INDEX WHICH HAS BEEN WRITTEN *
0144      C TO THE DATA FILE TO MAKE IT EASY TO READ THE FILE BY HAND. HERE *
0145      C IT IS NOT NEEDED SO IT IS READ TO A DUMMY VARIABLE. *
0146      C*****
0147      OPEN(10,FILE=DATAFILE,STATUS='OLD',
0148      1  FORM='FORMATTED',RECL=80)          !VAX 'OPEN' STATEMENT
0149      READ(10,101) IYMD,IHM,GPAT,DEPTH,NF,ND          !AUX. PARAMETERS
0150      READ(10,102) (D(J),J=1,ND)          !DIRECTIONS
0151      READ(10,103) (DS(J),J=1,ND)          !DIRECTIONAL SPECTRUM
0152      DO 1 N=1,NF          !FOR ALL FREQ.'S
0153          READ(10,104) NN,F(N),FS(N)          !FREQ. & FREQ. SPECT.
0154          READ(10,105) (DD(N,J),J=1,ND)          !DIR. DISTRIBUTION
0155      1 CONTINUE          !END FREQ. LOOP
0156      CLOSE(10)          !VAX 'CLOSE'
0157      C*****
0158      C FORMAT STATEMENTS: *
0159      C*****
0160      101 FORMAT(1X,A6,A4,1X,A9,1X,F6.2,1X,I2,1X,I2)
0161      102 FORMAT(13(1X,F5.1))
0162      103 FORMAT(5(1X,E14.7))
0163      104 FORMAT(1X,I2,1X,F9.6,1X,E14.7)
0164      105 FORMAT(8(1X,F9.6))
0165      C*****
0166      C BUILD FREQUENCY-DIRECTION SPECTRUM FROM DIRECTIONAL DISTRIBUTION *
0167      C ARRAY AND FREQUENCY SPECTRUM. *
0168      C*****
0169      DO 2 N=1,NF          !FOR ALL FREQ.'S
0170      DO 3 J=1,ND          !FOR ALL DIR.'S
0171          FDS(N,J)=FS(N)*DD(N,J)          !SET F-D SPECTRUM
0172      3 CONTINUE          !END DIR. LOOP
0173      2 CONTINUE          !END FREQ. LOOP
0174      C*****
0175      C AT THIS POINT YOU SHOULD HAVE ALL THE DATA THERE IS. INSERT YOUR *
0176      C OWN CODE HERE... *
0177      C*****
0178      C END PROGRAM. *
0179      C*****
0180      END
0181      !BAG IT

```

Appendix D: Listing of Sample Data File

```

8902240700 987123456 8.52 28 91
90.0 28.0 86.0 84.0 82.0 80.0 78.0 76.0 74.0 72.0 70.0 68.0 66.0
64.0 62.0 60.0 58.0 56.0 54.0 52.0 50.0 48.0 46.0 44.0 42.0 40.0
38.0 36.0 34.0 32.0 30.0 28.0 26.0 24.0 22.0 20.0 18.0 16.0 14.0
12.0 10.0 8.0 6.0 4.0 2.0 0.0 -2.0 -4.0 -6.0 -8.0 -10.0 -12.0
-14.0 -16.0 -18.0 -20.0 -22.0 -24.0 -26.0 -28.0 -30.0 -32.0 -34.0 -36.0 -38.0
-40.0 -42.0 -44.0 -46.0 -48.0 -50.0 -52.0 -54.0 -56.0 -58.0 -60.0 -62.0 -64.0
-66.0 -68.0 -70.0 -72.0 -74.0 -76.0 -78.0 -80.0 -82.0 -84.0 -86.0 -88.0 -90.0
0.2057247E-05 0.5342481E-04 0.1018638E-03 0.1558477E-03 0.2125525E-03
0.2717177E-03 0.3413832E-03 0.4161796E-03 0.4964087E-03 0.5907945E-03
0.7031927E-03 0.8367718E-03 0.9774255E-03 0.1144109E-02 0.1343735E-02
0.1584032E-02 0.1870549E-02 0.2209278E-02 0.2620744E-02 0.3112426E-02
0.3730591E-02 0.4488491E-02 0.5434267E-02 0.6624940E-02 0.8173139E-02
0.1014456E-01 0.1223048E-01 0.1342075E-01 0.1308285E-01 0.1217896E-01
0.1159800E-01 0.1140523E-01 0.1149685E-01 0.1176519E-01 0.1213393E-01
0.1257900E-01 0.1308923E-01 0.1369677E-01 0.1434753E-01 0.1579574E-01
0.1730208E-01 0.1822257E-01 0.1800224E-01 0.1722845E-01 0.1650132E-01
0.1594328E-01 0.1542723E-01 0.1481606E-01 0.1405363E-01 0.1317899E-01
0.1225224E-01 0.1134368E-01 0.1054621E-01 0.9811191E-02 0.9116064E-02
0.8444225E-02 0.7810956E-02 0.7263249E-02 0.6784586E-02 0.6349536E-02
0.5974876E-02 0.5663159E-02 0.5391035E-02 0.5135995E-02 0.4910268E-02
0.4700835E-02 0.4498000E-02 0.4338437E-02 0.4235120E-02 0.4146515E-02
0.3971321E-02 0.3651073E-02 0.3280493E-02 0.2935033E-02 0.2533931E-02
0.2352222E-02 0.2089609E-02 0.1858124E-02 0.1654786E-02 0.1472106E-02
0.1289594E-02 0.1122603E-02 0.9721399E-03 0.8356689E-03 0.7004577E-03
0.5682925E-03 0.4475541E-03 0.3319516E-03 0.2214703E-03 0.1144947E-03
0.8974795E-05
1 0.054200 0.1975180E+00
0.000000 0.000216 0.000575 0.000646 0.001146 0.001146 0.001730 0.001814
0.002228 0.002476 0.002771 0.003262 0.003379 0.004198 0.004198 0.005161
0.005298 0.006076 0.006543 0.007067 0.007940 0.008095 0.009182 0.009182
0.009938 0.010046 0.010228 0.010337 0.010320 0.010291 0.010289 0.010276
0.010276 0.010562 0.010602 0.011029 0.011285 0.011509 0.011882 0.011871
0.011792 0.011792 0.010628 0.010691 0.009730 0.009154 0.008635 0.007776
0.007649 0.006801 0.006801 0.006355 0.006291 0.006110 0.006001 0.005907
0.005752 0.005712 0.005436 0.005436 0.005099 0.005051 0.004802 0.004652
0.004515 0.004286 0.004244 0.003956 0.003956 0.003671 0.003630 0.003401
0.003263 0.003106 0.002843 0.002785 0.002376 0.002376 0.001952 0.001891
0.001604 0.001431 0.001285 0.001041 0.000991 0.000639 0.000639 0.000361
0.000321 0.000120 0.000000
2 0.063960 0.2842002E+00
0.000000 0.000209 0.000371 0.000652 0.000779 0.001151 0.001236 0.001680
0.001747 0.002300 0.002449 0.003096 0.003390 0.004036 0.004572 0.005261
0.006141 0.006825 0.007928 0.008429 0.009679 0.009968 0.010867 0.010928
0.010939 0.010804 0.010219 0.009888 0.009159 0.008729 0.008176 0.007806
0.007519 0.007362 0.007291 0.007475 0.007517 0.008169 0.008278 0.009257
0.009479 0.010444 0.010764 0.011470 0.011650 0.011881 0.011758 0.011663
0.011173 0.010950 0.010226 0.010059 0.009170 0.009051 0.008157 0.007992
0.007273 0.007031 0.006496 0.006200 0.005820 0.005484 0.005222 0.004832
0.004655 0.004190 0.004083 0.003495 0.003420 0.002882 0.002778 0.002328
0.002187 0.001877 0.001703 0.001478 0.001304 0.001170 0.001002 0.000926
0.000753 0.000713 0.000555 0.000535 0.000399 0.000372 0.000257 0.000216
0.000125 0.000070 0.000000
3 0.073730 0.1182267E+01
0.000000 0.000242 0.000386 0.000781 0.000968 0.001168 0.001550 0.001745
0.002128 0.002498 0.002718 0.003254 0.003509 0.003824 0.004258 0.004439
0.004765 0.004952 0.005068 0.005269 0.005336 0.005432 0.005578 0.005670
0.005902 0.006175 0.006365 0.007035 0.007385 0.007949 0.008729 0.009112
0.009877 0.010199 0.010458 0.010648 0.010659 0.010660 0.010764 0.010870
0.011353 0.011891 0.012392 0.013656 0.014056 0.014689 0.014564 0.014377
0.013035 0.012119 0.011134 0.009685 0.009183 0.008379 0.008068 0.007907
0.007874 0.007925 0.007988 0.007895 0.007728 0.007235 0.006519 0.006066
0.004774 0.004298 0.003614 0.002871 0.002568 0.002073 0.001824 0.001650
0.001365 0.001281 0.001150 0.001037 0.000983 0.000882 0.000824 0.000778
0.000682 0.000643 0.000576 0.000501 0.000459 0.000360 0.000298 0.000240
0.000135 0.000087 0.000000
4 0.083500 0.6140527E+01
0.000000 0.000102 0.000183 0.000268 0.000399 0.000480 0.000566 0.000706
0.000830 0.000933 0.001049 0.001249 0.001391 0.001539 0.001779 0.002020

```

| | | | | | | | |
|----------|----------|---------------|----------|----------|----------|----------|----------|
| 0.002231 | 0.002487 | 0.002892 | 0.003231 | 0.003583 | 0.004127 | 0.004686 | 0.005163 |
| 0.005735 | 0.006490 | 0.006973 | 0.007441 | 0.008060 | 0.008378 | 0.008607 | 0.008813 |
| 0.008943 | 0.009017 | 0.009088 | 0.009243 | 0.009410 | 0.009588 | 0.009867 | 0.010225 |
| 0.010467 | 0.010701 | 0.010995 | 0.011100 | 0.011182 | 0.011241 | 0.011295 | 0.011370 |
| 0.011467 | 0.011729 | 0.011935 | 0.012140 | 0.012422 | 0.012513 | 0.012448 | 0.012285 |
| 0.011629 | 0.011026 | 0.010382 | 0.009339 | 0.008464 | 0.007806 | 0.007107 | 0.006329 |
| 0.005925 | 0.005552 | 0.005097 | 0.004805 | 0.004569 | 0.004301 | 0.003991 | 0.003764 |
| 0.003532 | 0.003175 | 0.002905 | 0.002665 | 0.002368 | 0.002038 | 0.001826 | 0.001621 |
| 0.001328 | 0.001165 | 0.001024 | 0.000859 | 0.000672 | 0.000564 | 0.000467 | 0.000313 |
| 0.000211 | 0.000116 | 0.000000 | | | | | |
| 5 | 0.093260 | 0.1535692E+02 | | | | | |
| 0.000000 | 0.000078 | 0.000144 | 0.000211 | 0.000278 | 0.000357 | 0.000474 | 0.000569 |
| 0.000659 | 0.000778 | 0.000935 | 0.001110 | 0.001286 | 0.001485 | 0.001707 | 0.002004 |
| 0.002351 | 0.002719 | 0.003105 | 0.003509 | 0.004052 | 0.004627 | 0.005158 | 0.005685 |
| 0.006198 | 0.006789 | 0.007349 | 0.007772 | 0.008156 | 0.008503 | 0.008857 | 0.009158 |
| 0.009386 | 0.009594 | 0.009786 | 0.009996 | 0.010202 | 0.010386 | 0.010582 | 0.010793 |
| 0.011068 | 0.011351 | 0.011586 | 0.011801 | 0.011979 | 0.012085 | 0.012041 | 0.011872 |
| 0.011613 | 0.011278 | 0.010802 | 0.010258 | 0.009806 | 0.009376 | 0.008972 | 0.008546 |
| 0.008174 | 0.007890 | 0.007631 | 0.007394 | 0.007140 | 0.006901 | 0.006704 | 0.006509 |
| 0.006315 | 0.006087 | 0.005856 | 0.005651 | 0.005436 | 0.005212 | 0.004935 | 0.004636 |
| 0.004370 | 0.004088 | 0.003791 | 0.003450 | 0.003108 | 0.002819 | 0.002537 | 0.002266 |
| 0.001970 | 0.001686 | 0.001455 | 0.001251 | 0.001067 | 0.000821 | 0.000640 | 0.000486 |
| 0.000333 | 0.000179 | 0.000000 | | | | | |
| 6 | 0.103030 | 0.1267516E+02 | | | | | |
| 0.000000 | 0.000087 | 0.000168 | 0.000267 | 0.000363 | 0.000456 | 0.000565 | 0.000695 |
| 0.000820 | 0.000971 | 0.001177 | 0.001371 | 0.001590 | 0.001838 | 0.002115 | 0.002426 |
| 0.002775 | 0.003149 | 0.003555 | 0.004002 | 0.004411 | 0.004815 | 0.005194 | 0.005551 |
| 0.005885 | 0.006185 | 0.006467 | 0.006761 | 0.007066 | 0.007375 | 0.007719 | 0.008098 |
| 0.008512 | 0.008952 | 0.009406 | 0.009855 | 0.010308 | 0.010684 | 0.010945 | 0.011119 |
| 0.011205 | 0.011213 | 0.011162 | 0.011071 | 0.010959 | 0.010854 | 0.010776 | 0.010738 |
| 0.010729 | 0.010742 | 0.010762 | 0.010770 | 0.010741 | 0.010661 | 0.010493 | 0.010223 |
| 0.009892 | 0.009497 | 0.009055 | 0.008584 | 0.008099 | 0.007615 | 0.007145 | 0.006671 |
| 0.006234 | 0.005862 | 0.005519 | 0.005199 | 0.004907 | 0.004640 | 0.004386 | 0.004148 |
| 0.003900 | 0.003661 | 0.003436 | 0.003211 | 0.002985 | 0.002758 | 0.002530 | 0.002303 |
| 0.002078 | 0.001828 | 0.001596 | 0.001388 | 0.001172 | 0.000969 | 0.000776 | 0.000581 |
| 0.000381 | 0.000197 | 0.000000 | | | | | |
| 7 | 0.112790 | 0.9295453E+01 | | | | | |
| 0.000000 | 0.000074 | 0.000147 | 0.000220 | 0.000293 | 0.000397 | 0.000477 | 0.000592 |
| 0.000694 | 0.000840 | 0.000987 | 0.001154 | 0.001349 | 0.001575 | 0.001837 | 0.002136 |
| 0.002476 | 0.002884 | 0.003345 | 0.003822 | 0.004406 | 0.004950 | 0.005569 | 0.006107 |
| 0.006605 | 0.007032 | 0.007347 | 0.007580 | 0.007754 | 0.007902 | 0.008062 | 0.008265 |
| 0.008528 | 0.008855 | 0.009232 | 0.009632 | 0.010030 | 0.010385 | 0.010672 | 0.010892 |
| 0.011054 | 0.011174 | 0.011267 | 0.011342 | 0.011399 | 0.011420 | 0.011400 | 0.011328 |
| 0.011219 | 0.011086 | 0.010945 | 0.010811 | 0.010682 | 0.010542 | 0.010367 | 0.010132 |
| 0.009826 | 0.009446 | 0.009009 | 0.008541 | 0.008073 | 0.007629 | 0.007223 | 0.006861 |
| 0.006536 | 0.006235 | 0.005936 | 0.005638 | 0.005331 | 0.004981 | 0.004639 | 0.004200 |
| 0.003886 | 0.003504 | 0.003132 | 0.002792 | 0.002471 | 0.002173 | 0.001900 | 0.001655 |
| 0.001436 | 0.001238 | 0.001038 | 0.000890 | 0.000726 | 0.000603 | 0.000452 | 0.000340 |
| 0.000227 | 0.000113 | 0.000000 | | | | | |
| 8 | 0.122560 | 0.6190010E+01 | | | | | |
| 0.000000 | 0.000100 | 0.000195 | 0.000295 | 0.000413 | 0.000533 | 0.000672 | 0.000814 |
| 0.001008 | 0.001207 | 0.001445 | 0.001729 | 0.002048 | 0.002407 | 0.002820 | 0.003308 |
| 0.003861 | 0.004462 | 0.005149 | 0.005964 | 0.006716 | 0.007524 | 0.008306 | 0.009066 |
| 0.009750 | 0.010392 | 0.010951 | 0.011451 | 0.011856 | 0.012132 | 0.012275 | 0.012268 |
| 0.012112 | 0.011839 | 0.011506 | 0.011180 | 0.010926 | 0.010825 | 0.010923 | 0.011203 |
| 0.011652 | 0.012215 | 0.012787 | 0.013259 | 0.013508 | 0.013404 | 0.012903 | 0.012075 |
| 0.011070 | 0.009991 | 0.008928 | 0.007988 | 0.007209 | 0.006581 | 0.006066 | 0.005687 |
| 0.005396 | 0.005139 | 0.004889 | 0.004631 | 0.004360 | 0.004085 | 0.003820 | 0.003571 |
| 0.003361 | 0.003202 | 0.003081 | 0.002995 | 0.002933 | 0.002881 | 0.002829 | 0.002760 |
| 0.002668 | 0.002541 | 0.002394 | 0.002223 | 0.002035 | 0.001842 | 0.001649 | 0.001457 |
| 0.001269 | 0.001095 | 0.000937 | 0.000782 | 0.000654 | 0.000529 | 0.000415 | 0.000302 |
| 0.000201 | 0.000103 | 0.000000 | | | | | |
| 9 | 0.132320 | 0.5839083E+01 | | | | | |
| 0.000007 | 0.000056 | 0.000108 | 0.000160 | 0.000224 | 0.000291 | 0.000365 | 0.000447 |
| 0.000531 | 0.000637 | 0.000758 | 0.000897 | 0.001049 | 0.001224 | 0.001425 | 0.001672 |
| 0.001960 | 0.002282 | 0.002643 | 0.003060 | 0.003563 | 0.004134 | 0.004715 | 0.005337 |
| 0.005958 | 0.006635 | 0.007241 | 0.007721 | 0.008102 | 0.008376 | 0.008569 | 0.008708 |
| 0.008851 | 0.009064 | 0.009393 | 0.009931 | 0.010659 | 0.011481 | 0.012396 | 0.013330 |
| 0.014211 | 0.014887 | 0.015252 | 0.015307 | 0.015026 | 0.014385 | 0.013478 | 0.012508 |
| 0.011620 | 0.010854 | 0.010273 | 0.009906 | 0.009664 | 0.009409 | 0.009037 | 0.008431 |
| 0.007636 | 0.006857 | 0.006143 | 0.005569 | 0.005163 | 0.004983 | 0.005004 | 0.005172 |

| | | | | | | | |
|----------|----------|---------------|----------|----------|----------|----------|----------|
| 0.003440 | 0.003773 | 0.006066 | 0.006178 | 0.006119 | 0.005876 | 0.005442 | 0.004907 |
| 0.004376 | 0.003863 | 0.003376 | 0.002922 | 0.002521 | 0.002189 | 0.001895 | 0.001635 |
| 0.001394 | 0.001179 | 0.000989 | 0.000836 | 0.000686 | 0.000548 | 0.000423 | 0.000304 |
| 0.000205 | 0.000106 | 0.000014 | | | | | |
| 10 | 0.142090 | 0.4292095E+01 | | | | | |
| 0.000006 | 0.000033 | 0.000069 | 0.000106 | 0.000146 | 0.000193 | 0.000239 | 0.000315 |
| 0.000381 | 0.000471 | 0.000590 | 0.000722 | 0.000882 | 0.001109 | 0.001381 | 0.001693 |
| 0.002104 | 0.002639 | 0.003209 | 0.003895 | 0.004742 | 0.005527 | 0.006343 | 0.007269 |
| 0.008038 | 0.008772 | 0.009585 | 0.010293 | 0.010912 | 0.011444 | 0.011730 | 0.011758 |
| 0.011585 | 0.011296 | 0.011057 | 0.010912 | 0.010914 | 0.011049 | 0.011256 | 0.011537 |
| 0.011778 | 0.012015 | 0.012323 | 0.012636 | 0.012937 | 0.013169 | 0.013204 | 0.013025 |
| 0.012660 | 0.012138 | 0.011662 | 0.011153 | 0.010485 | 0.009806 | 0.008999 | 0.007975 |
| 0.007110 | 0.006373 | 0.005730 | 0.005310 | 0.005065 | 0.004919 | 0.004842 | 0.004788 |
| 0.004708 | 0.004569 | 0.004403 | 0.004204 | 0.003944 | 0.003712 | 0.003480 | 0.003209 |
| 0.002958 | 0.002712 | 0.002433 | 0.002166 | 0.001923 | 0.001674 | 0.001430 | 0.001233 |
| 0.001055 | 0.000877 | 0.000734 | 0.000621 | 0.000487 | 0.000397 | 0.000308 | 0.000224 |
| 0.000146 | 0.000073 | 0.000013 | | | | | |
| 11 | 0.151860 | 0.3586142E+01 | | | | | |
| 0.000006 | 0.000029 | 0.000057 | 0.000087 | 0.000120 | 0.000163 | 0.000207 | 0.000263 |
| 0.000331 | 0.000410 | 0.000519 | 0.000643 | 0.000815 | 0.001001 | 0.001290 | 0.001581 |
| 0.002011 | 0.002492 | 0.003065 | 0.003764 | 0.004479 | 0.005330 | 0.006061 | 0.006963 |
| 0.007607 | 0.008306 | 0.008852 | 0.009359 | 0.009816 | 0.010204 | 0.010574 | 0.010812 |
| 0.010966 | 0.010951 | 0.010766 | 0.010472 | 0.010066 | 0.009645 | 0.009308 | 0.009064 |
| 0.009024 | 0.009249 | 0.009696 | 0.010535 | 0.011585 | 0.012902 | 0.014250 | 0.015301 |
| 0.015871 | 0.015705 | 0.014722 | 0.013481 | 0.011877 | 0.010534 | 0.009339 | 0.008428 |
| 0.007836 | 0.007419 | 0.007226 | 0.007124 | 0.007097 | 0.007055 | 0.006956 | 0.006739 |
| 0.006396 | 0.005954 | 0.005361 | 0.004835 | 0.004153 | 0.003651 | 0.003113 | 0.002690 |
| 0.002298 | 0.001981 | 0.001717 | 0.001473 | 0.001299 | 0.001113 | 0.000983 | 0.000850 |
| 0.000743 | 0.000638 | 0.000549 | 0.000467 | 0.000387 | 0.000320 | 0.000245 | 0.000185 |
| 0.000120 | 0.000062 | 0.000013 | | | | | |
| 12 | 0.161620 | 0.3554864E+01 | | | | | |
| 0.000002 | 0.000007 | 0.000016 | 0.000023 | 0.000033 | 0.000044 | 0.000059 | 0.000077 |
| 0.000101 | 0.000131 | 0.000172 | 0.000232 | 0.000303 | 0.000417 | 0.000550 | 0.000766 |
| 0.001038 | 0.001416 | 0.001934 | 0.002575 | 0.003449 | 0.004386 | 0.005612 | 0.006718 |
| 0.007952 | 0.008888 | 0.009711 | 0.010233 | 0.010555 | 0.010694 | 0.010692 | 0.010558 |
| 0.010359 | 0.010052 | 0.009750 | 0.009426 | 0.009195 | 0.009080 | 0.009168 | 0.009473 |
| 0.010198 | 0.011171 | 0.012788 | 0.014592 | 0.016756 | 0.018591 | 0.019681 | 0.019526 |
| 0.018289 | 0.016008 | 0.013860 | 0.011537 | 0.009915 | 0.008508 | 0.007564 | 0.006885 |
| 0.006405 | 0.006122 | 0.005931 | 0.005845 | 0.005799 | 0.005784 | 0.005764 | 0.005716 |
| 0.005620 | 0.005443 | 0.005208 | 0.004849 | 0.004476 | 0.003987 | 0.003540 | 0.003048 |
| 0.002613 | 0.002201 | 0.001839 | 0.001539 | 0.001257 | 0.001056 | 0.000860 | 0.000720 |
| 0.000587 | 0.000485 | 0.000400 | 0.000324 | 0.000264 | 0.000206 | 0.000160 | 0.000114 |
| 0.000078 | 0.000035 | 0.000008 | | | | | |
| 13 | 0.171390 | 0.2991974E+01 | | | | | |
| 0.000001 | 0.000005 | 0.000010 | 0.000016 | 0.000023 | 0.000031 | 0.000041 | 0.000054 |
| 0.000072 | 0.000094 | 0.000125 | 0.000165 | 0.000226 | 0.000307 | 0.000418 | 0.000593 |
| 0.000820 | 0.001144 | 0.001621 | 0.002252 | 0.003057 | 0.004140 | 0.005431 | 0.006829 |
| 0.008322 | 0.009804 | 0.011008 | 0.012007 | 0.012798 | 0.013280 | 0.013554 | 0.013599 |
| 0.013414 | 0.013065 | 0.012564 | 0.012073 | 0.011679 | 0.011466 | 0.011553 | 0.011956 |
| 0.012711 | 0.013827 | 0.014964 | 0.015965 | 0.016441 | 0.016097 | 0.015083 | 0.013469 |
| 0.011885 | 0.010508 | 0.009348 | 0.008600 | 0.008153 | 0.007918 | 0.007848 | 0.007846 |
| 0.007831 | 0.007718 | 0.007487 | 0.007134 | 0.006622 | 0.006104 | 0.005581 | 0.005042 |
| 0.004588 | 0.004183 | 0.003787 | 0.003430 | 0.003093 | 0.002750 | 0.002406 | 0.002094 |
| 0.001790 | 0.001499 | 0.001254 | 0.001045 | 0.000849 | 0.000700 | 0.000575 | 0.000466 |
| 0.000383 | 0.000312 | 0.000255 | 0.000204 | 0.000164 | 0.000130 | 0.000098 | 0.000071 |
| 0.000047 | 0.000022 | 0.000006 | | | | | |
| 14 | 0.181150 | 0.3367139E+01 | | | | | |
| 0.000001 | 0.000003 | 0.000005 | 0.000008 | 0.000012 | 0.000017 | 0.000022 | 0.000030 |
| 0.000040 | 0.000055 | 0.000076 | 0.000104 | 0.000145 | 0.000206 | 0.000298 | 0.000437 |
| 0.000640 | 0.000949 | 0.001395 | 0.002040 | 0.003021 | 0.004328 | 0.005948 | 0.007803 |
| 0.009713 | 0.011329 | 0.012421 | 0.012798 | 0.012679 | 0.012278 | 0.011795 | 0.011363 |
| 0.011088 | 0.010998 | 0.011091 | 0.011366 | 0.011804 | 0.012425 | 0.013092 | 0.013758 |
| 0.014315 | 0.014690 | 0.014832 | 0.014745 | 0.014529 | 0.014279 | 0.014070 | 0.013934 |
| 0.013838 | 0.013700 | 0.013412 | 0.012896 | 0.012120 | 0.011147 | 0.009996 | 0.008935 |
| 0.007966 | 0.007130 | 0.006446 | 0.005875 | 0.005397 | 0.004985 | 0.004589 | 0.004186 |
| 0.003761 | 0.003298 | 0.002854 | 0.002425 | 0.002037 | 0.001694 | 0.001397 | 0.001145 |
| 0.000952 | 0.000796 | 0.000667 | 0.000564 | 0.000478 | 0.000408 | 0.000350 | 0.000301 |
| 0.000260 | 0.000222 | 0.000189 | 0.000159 | 0.000132 | 0.000107 | 0.000085 | 0.000062 |
| 0.000041 | 0.000020 | 0.000005 | | | | | |
| 15 | 0.190920 | 0.3588504E+01 | | | | | |
| 0.000000 | 0.000002 | 0.000003 | 0.000005 | 0.000007 | 0.000010 | 0.000013 | 0.000017 |

| | | | | | | | |
|----------|----------|---------------|----------|----------|----------|----------|----------|
| 0.000023 | 0.000032 | 0.000044 | 0.000062 | 0.000089 | 0.000130 | 0.000195 | 0.000295 |
| 0.000461 | 0.000724 | 0.001152 | 0.001824 | 0.002861 | 0.004379 | 0.006415 | 0.008833 |
| 0.011274 | 0.013065 | 0.013920 | 0.013817 | 0.013112 | 0.012172 | 0.011248 | 0.010461 |
| 0.009857 | 0.009460 | 0.009295 | 0.009408 | 0.009861 | 0.010732 | 0.012105 | 0.014001 |
| 0.016345 | 0.018827 | 0.020935 | 0.022167 | 0.022272 | 0.021410 | 0.019923 | 0.018120 |
| 0.016112 | 0.014004 | 0.011871 | 0.009861 | 0.008117 | 0.006706 | 0.005658 | 0.004946 |
| 0.004520 | 0.004343 | 0.004357 | 0.004497 | 0.004658 | 0.004703 | 0.004507 | 0.004035 |
| 0.003369 | 0.002637 | 0.002001 | 0.001480 | 0.001105 | 0.000840 | 0.000656 | 0.000527 |
| 0.000437 | 0.000371 | 0.000322 | 0.000284 | 0.000253 | 0.000227 | 0.000203 | 0.000182 |
| 0.000162 | 0.000143 | 0.000124 | 0.000107 | 0.000090 | 0.000074 | 0.000058 | 0.000043 |
| 0.000028 | 0.000014 | 0.000004 | | | | | |
| 16 | 0.200680 | 0.3781238E+01 | | | | | |
| 0.000000 | 0.000002 | 0.000003 | 0.000005 | 0.000008 | 0.000010 | 0.000014 | 0.000018 |
| 0.000024 | 0.000032 | 0.000043 | 0.000059 | 0.000084 | 0.000120 | 0.000176 | 0.000263 |
| 0.000397 | 0.000620 | 0.000970 | 0.001552 | 0.002471 | 0.003869 | 0.005876 | 0.008499 |
| 0.011454 | 0.014224 | 0.016052 | 0.016598 | 0.016056 | 0.015048 | 0.014062 | 0.013354 |
| 0.012971 | 0.012837 | 0.012835 | 0.012837 | 0.012751 | 0.012556 | 0.012278 | 0.012000 |
| 0.011806 | 0.011793 | 0.012034 | 0.012551 | 0.013318 | 0.014252 | 0.015176 | 0.015850 |
| 0.016055 | 0.015642 | 0.014694 | 0.013411 | 0.012047 | 0.010742 | 0.009590 | 0.008566 |
| 0.007640 | 0.006740 | 0.005860 | 0.004989 | 0.004145 | 0.003368 | 0.002692 | 0.002132 |
| 0.001682 | 0.001351 | 0.001101 | 0.000919 | 0.000782 | 0.000680 | 0.000602 | 0.000541 |
| 0.000491 | 0.000450 | 0.000414 | 0.000382 | 0.000351 | 0.000322 | 0.000293 | 0.000264 |
| 0.000237 | 0.000210 | 0.000184 | 0.000158 | 0.000133 | 0.000110 | 0.000087 | 0.000064 |
| 0.000043 | 0.000021 | 0.000005 | | | | | |
| 17 | 0.210450 | 0.3163494E+01 | | | | | |
| 0.000005 | 0.000020 | 0.000042 | 0.000063 | 0.000086 | 0.000111 | 0.000139 | 0.000169 |
| 0.000206 | 0.000248 | 0.000295 | 0.000354 | 0.000426 | 0.000512 | 0.000617 | 0.000759 |
| 0.000930 | 0.001147 | 0.001439 | 0.001807 | 0.002271 | 0.002882 | 0.003641 | 0.004537 |
| 0.005591 | 0.006760 | 0.007854 | 0.008843 | 0.009607 | 0.010054 | 0.010260 | 0.010296 |
| 0.010254 | 0.010219 | 0.010243 | 0.010362 | 0.010575 | 0.010898 | 0.011313 | 0.011799 |
| 0.012374 | 0.013045 | 0.013787 | 0.014635 | 0.015635 | 0.016676 | 0.017728 | 0.018690 |
| 0.019273 | 0.019322 | 0.018681 | 0.017409 | 0.015732 | 0.013844 | 0.011983 | 0.010371 |
| 0.008968 | 0.007760 | 0.006815 | 0.006024 | 0.005322 | 0.004750 | 0.004244 | 0.003766 |
| 0.003343 | 0.002965 | 0.002602 | 0.002280 | 0.001997 | 0.001739 | 0.001510 | 0.001316 |
| 0.001144 | 0.000992 | 0.000865 | 0.000756 | 0.000654 | 0.000572 | 0.000499 | 0.000432 |
| 0.000374 | 0.000323 | 0.000276 | 0.000233 | 0.000194 | 0.000158 | 0.000124 | 0.000091 |
| 0.000061 | 0.000029 | 0.000007 | | | | | |
| 18 | 0.220210 | 0.2523808E+01 | | | | | |
| 0.000007 | 0.000030 | 0.000061 | 0.000093 | 0.000127 | 0.000163 | 0.000204 | 0.000248 |
| 0.000299 | 0.000356 | 0.000426 | 0.000504 | 0.000604 | 0.000719 | 0.000866 | 0.001045 |
| 0.001274 | 0.001553 | 0.001927 | 0.002370 | 0.002961 | 0.003642 | 0.004516 | 0.005440 |
| 0.006500 | 0.007460 | 0.008378 | 0.009040 | 0.009533 | 0.009827 | 0.010026 | 0.010177 |
| 0.010354 | 0.010569 | 0.010856 | 0.011190 | 0.011594 | 0.012042 | 0.012577 | 0.013204 |
| 0.013996 | 0.014983 | 0.016235 | 0.017700 | 0.019288 | 0.020703 | 0.021502 | 0.021299 |
| 0.020017 | 0.017943 | 0.015626 | 0.013410 | 0.011552 | 0.010020 | 0.008842 | 0.007865 |
| 0.007080 | 0.006363 | 0.005723 | 0.005073 | 0.004477 | 0.003876 | 0.003347 | 0.002845 |
| 0.002436 | 0.002058 | 0.001766 | 0.001504 | 0.001302 | 0.001120 | 0.000980 | 0.000854 |
| 0.000753 | 0.000661 | 0.000586 | 0.000517 | 0.000458 | 0.000404 | 0.000358 | 0.000313 |
| 0.000275 | 0.000239 | 0.000207 | 0.000176 | 0.000148 | 0.000120 | 0.000095 | 0.000070 |
| 0.000047 | 0.000023 | 0.000005 | | | | | |
| 19 | 0.229980 | 0.2522219E+01 | | | | | |
| 0.000000 | 0.000001 | 0.000002 | 0.000004 | 0.000005 | 0.000007 | 0.000009 | 0.000012 |
| 0.000015 | 0.000019 | 0.000024 | 0.000032 | 0.000043 | 0.000059 | 0.000084 | 0.000124 |
| 0.000192 | 0.000302 | 0.000499 | 0.000858 | 0.001491 | 0.002651 | 0.004688 | 0.007862 |
| 0.012315 | 0.017144 | 0.020590 | 0.021484 | 0.020024 | 0.017717 | 0.015647 | 0.014362 |
| 0.013842 | 0.013857 | 0.014167 | 0.014498 | 0.014664 | 0.014564 | 0.014270 | 0.013914 |
| 0.013683 | 0.013719 | 0.014100 | 0.014836 | 0.015797 | 0.016811 | 0.017514 | 0.017562 |
| 0.016758 | 0.015128 | 0.013016 | 0.010672 | 0.008459 | 0.006583 | 0.005019 | 0.003833 |
| 0.002971 | 0.002347 | 0.001919 | 0.001638 | 0.001451 | 0.001337 | 0.001271 | 0.001230 |
| 0.001200 | 0.001166 | 0.001117 | 0.001047 | 0.000957 | 0.000856 | 0.000733 | 0.000620 |
| 0.000512 | 0.000416 | 0.000338 | 0.000270 | 0.000217 | 0.000175 | 0.000141 | 0.000115 |
| 0.000094 | 0.000077 | 0.000063 | 0.000052 | 0.000042 | 0.000034 | 0.000026 | 0.000019 |
| 0.000012 | 0.000006 | 0.000001 | | | | | |
| 20 | 0.239750 | 0.2385491E+01 | | | | | |
| 0.000020 | 0.000002 | 0.000003 | 0.000005 | 0.000007 | 0.000009 | 0.000012 | 0.000016 |
| 0.000021 | 0.000027 | 0.000035 | 0.000046 | 0.000062 | 0.000085 | 0.000119 | 0.000172 |
| 0.000254 | 0.000385 | 0.000597 | 0.000939 | 0.001496 | 0.002373 | 0.003710 | 0.005641 |
| 0.007804 | 0.010607 | 0.012764 | 0.014057 | 0.014367 | 0.014020 | 0.013468 | 0.013073 |
| 0.013003 | 0.013288 | 0.013897 | 0.014756 | 0.015802 | 0.016959 | 0.018163 | 0.019340 |
| 0.020415 | 0.021284 | 0.021309 | 0.021862 | 0.021379 | 0.020384 | 0.018997 | 0.017373 |
| 0.015387 | 0.013680 | 0.011681 | 0.009665 | 0.007743 | 0.006040 | 0.004685 | 0.003648 |

| | | | | | | | |
|----------|----------|---------------|----------|----------|----------|----------|----------|
| 0.002904 | 0.002377 | 0.002017 | 0.001768 | 0.001590 | 0.001456 | 0.001341 | 0.001230 |
| 0.001113 | 0.000990 | 0.000862 | 0.000736 | 0.000616 | 0.000511 | 0.000421 | 0.000347 |
| 0.000287 | 0.000239 | 0.000201 | 0.000172 | 0.000148 | 0.000129 | 0.000113 | 0.000100 |
| 0.000089 | 0.000079 | 0.000070 | 0.000061 | 0.000052 | 0.000044 | 0.000035 | 0.000026 |
| 0.000018 | 0.000009 | 0.000002 | | | | | |
| 21 | 0.249510 | 0.2202357E+01 | | | | | |
| 0.000005 | 0.000020 | 0.000039 | 0.000061 | 0.000083 | 0.000107 | 0.000134 | 0.000165 |
| 0.000199 | 0.000241 | 0.000290 | 0.000350 | 0.000424 | 0.000518 | 0.000637 | 0.000791 |
| 0.000996 | 0.001268 | 0.001633 | 0.002125 | 0.002793 | 0.003673 | 0.004812 | 0.006236 |
| 0.007843 | 0.009490 | 0.010939 | 0.011992 | 0.012557 | 0.012685 | 0.012501 | 0.012144 |
| 0.011723 | 0.011320 | 0.010993 | 0.010876 | 0.010820 | 0.011095 | 0.011700 | 0.012700 |
| 0.014139 | 0.015996 | 0.018105 | 0.020096 | 0.021485 | 0.021914 | 0.021374 | 0.020175 |
| 0.018639 | 0.016940 | 0.015124 | 0.013204 | 0.011246 | 0.009369 | 0.007708 | 0.006330 |
| 0.005234 | 0.004394 | 0.003758 | 0.003265 | 0.002879 | 0.002536 | 0.002239 | 0.001966 |
| 0.001709 | 0.001472 | 0.001258 | 0.001071 | 0.000911 | 0.000781 | 0.000674 | 0.000588 |
| 0.000520 | 0.000464 | 0.000420 | 0.000383 | 0.000352 | 0.000325 | 0.000300 | 0.000277 |
| 0.000255 | 0.000234 | 0.000211 | 0.000188 | 0.000164 | 0.000139 | 0.000112 | 0.000085 |
| 0.000057 | 0.000029 | 0.000007 | | | | | |
| 22 | 0.259280 | 0.2189427E+01 | | | | | |
| 0.000003 | 0.000012 | 0.000024 | 0.000038 | 0.000053 | 0.000069 | 0.000088 | 0.000112 |
| 0.000139 | 0.000174 | 0.000218 | 0.000273 | 0.000345 | 0.000441 | 0.000569 | 0.000739 |
| 0.000976 | 0.001305 | 0.001758 | 0.002392 | 0.003301 | 0.004504 | 0.006068 | 0.007988 |
| 0.009918 | 0.011494 | 0.012341 | 0.012341 | 0.011794 | 0.011064 | 0.010459 | 0.010144 |
| 0.010182 | 0.010622 | 0.011478 | 0.012775 | 0.014588 | 0.016789 | 0.019324 | 0.022080 |
| 0.024627 | 0.026639 | 0.027697 | 0.027336 | 0.025472 | 0.022357 | 0.018687 | 0.015201 |
| 0.012209 | 0.009823 | 0.008049 | 0.006685 | 0.005592 | 0.004716 | 0.003960 | 0.003275 |
| 0.002687 | 0.002178 | 0.001747 | 0.001401 | 0.001132 | 0.000922 | 0.000764 | 0.000647 |
| 0.000558 | 0.000491 | 0.000441 | 0.000404 | 0.000375 | 0.000353 | 0.000336 | 0.000323 |
| 0.000313 | 0.000305 | 0.000298 | 0.000292 | 0.000286 | 0.000280 | 0.000273 | 0.000265 |
| 0.000254 | 0.000241 | 0.000226 | 0.000207 | 0.000185 | 0.000161 | 0.000133 | 0.000102 |
| 0.000069 | 0.000035 | 0.000008 | | | | | |
| 23 | 0.269040 | 0.2624645E+01 | | | | | |
| 0.000000 | 0.000000 | 0.000001 | 0.000001 | 0.000002 | 0.000003 | 0.000003 | 0.000004 |
| 0.000006 | 0.000007 | 0.000009 | 0.000012 | 0.000016 | 0.000022 | 0.000031 | 0.000045 |
| 0.000069 | 0.000112 | 0.000194 | 0.000360 | 0.000728 | 0.001537 | 0.003441 | 0.007349 |
| 0.014472 | 0.022892 | 0.027671 | 0.025706 | 0.020482 | 0.016046 | 0.013693 | 0.013000 |
| 0.013455 | 0.014583 | 0.015866 | 0.017014 | 0.017894 | 0.018724 | 0.019799 | 0.021111 |
| 0.022208 | 0.022148 | 0.020377 | 0.017472 | 0.014490 | 0.012372 | 0.011291 | 0.010924 |
| 0.010551 | 0.009385 | 0.007431 | 0.005267 | 0.003630 | 0.002575 | 0.002003 | 0.001731 |
| 0.001640 | 0.001639 | 0.001639 | 0.001560 | 0.001364 | 0.001094 | 0.000811 | 0.000579 |
| 0.000412 | 0.000304 | 0.000238 | 0.000201 | 0.000184 | 0.000181 | 0.000150 | 0.000211 |
| 0.000241 | 0.000282 | 0.000332 | 0.000387 | 0.000448 | 0.000502 | 0.000550 | 0.000585 |
| 0.000602 | 0.000602 | 0.000584 | 0.000547 | 0.000497 | 0.000433 | 0.000359 | 0.000276 |
| 0.000187 | 0.000095 | 0.000023 | | | | | |
| 24 | 0.278810 | 0.2843771E+01 | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000001 | 0.000001 | 0.000001 |
| 0.000001 | 0.000002 | 0.000003 | 0.000004 | 0.000005 | 0.000008 | 0.000013 | 0.000021 |
| 0.000036 | 0.000067 | 0.000129 | 0.000259 | 0.000532 | 0.001108 | 0.002289 | 0.004604 |
| 0.008373 | 0.013073 | 0.016669 | 0.017214 | 0.015078 | 0.012331 | 0.010341 | 0.009452 |
| 0.009674 | 0.011070 | 0.013696 | 0.017459 | 0.021198 | 0.025127 | 0.026935 | 0.027546 |
| 0.028152 | 0.029154 | 0.029402 | 0.026726 | 0.020841 | 0.014259 | 0.009353 | 0.006533 |
| 0.005195 | 0.004765 | 0.004785 | 0.004878 | 0.004681 | 0.004025 | 0.003111 | 0.002237 |
| 0.001580 | 0.001151 | 0.000894 | 0.000754 | 0.000685 | 0.000638 | 0.000654 | 0.000661 |
| 0.000670 | 0.000676 | 0.000681 | 0.000687 | 0.000699 | 0.000721 | 0.000758 | 0.000813 |
| 0.000890 | 0.000992 | 0.001118 | 0.001265 | 0.001430 | 0.001596 | 0.001750 | 0.001875 |
| 0.001944 | 0.001954 | 0.001995 | 0.001771 | 0.001592 | 0.001373 | 0.001123 | 0.000855 |
| 0.000572 | 0.000287 | 0.000072 | | | | | |
| 25 | 0.288570 | 0.2821039E+01 | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000001 | 0.000001 | 0.000001 | 0.000001 |
| 0.000002 | 0.000003 | 0.000003 | 0.000005 | 0.000006 | 0.000008 | 0.000011 | 0.000016 |
| 0.000022 | 0.000033 | 0.000052 | 0.000108 | 0.000167 | 0.000332 | 0.000830 | 0.002120 |
| 0.005446 | 0.012373 | 0.021254 | 0.025181 | 0.021635 | 0.016145 | 0.012569 | 0.011124 |
| 0.011027 | 0.011514 | 0.011956 | 0.012045 | 0.011960 | 0.012233 | 0.013511 | 0.016452 |
| 0.021395 | 0.027225 | 0.030583 | 0.028962 | 0.024292 | 0.019793 | 0.016426 | 0.013539 |
| 0.010573 | 0.007753 | 0.005594 | 0.004268 | 0.003641 | 0.003505 | 0.003435 | 0.003737 |
| 0.003486 | 0.002798 | 0.001944 | 0.001241 | 0.000790 | 0.000541 | 0.000418 | 0.000373 |
| 0.000380 | 0.000432 | 0.000529 | 0.000672 | 0.000853 | 0.001055 | 0.001249 | 0.001411 |
| 0.001529 | 0.001609 | 0.001667 | 0.001722 | 0.001781 | 0.001850 | 0.001921 | 0.001972 |
| 0.001990 | 0.001952 | 0.001851 | 0.001690 | 0.001481 | 0.001241 | 0.000988 | 0.000733 |
| 0.000482 | 0.000241 | 0.000059 | | | | | |
| 26 | 0.298340 | 0.3108903E+01 | | | | | |

| | | | | | | | |
|----------|----------|---------------|----------|----------|----------|----------|----------|
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000001 | 0.000001 | 0.000001 |
| 0.000001 | 0.000002 | 0.000003 | 0.000004 | 0.000005 | 0.000008 | 0.000011 | 0.000016 |
| 0.000024 | 0.000038 | 0.000061 | 0.000104 | 0.000194 | 0.000394 | 0.000870 | 0.002089 |
| 0.004872 | 0.009996 | 0.015889 | 0.017827 | 0.014938 | 0.010756 | 0.007934 | 0.006586 |
| 0.006308 | 0.006798 | 0.007865 | 0.009460 | 0.011570 | 0.014560 | 0.019313 | 0.026528 |
| 0.035173 | 0.039510 | 0.034384 | 0.024757 | 0.017233 | 0.013438 | 0.012097 | 0.012051 |
| 0.012207 | 0.011666 | 0.010191 | 0.008372 | 0.006743 | 0.005444 | 0.004412 | 0.003490 |
| 0.002634 | 0.001930 | 0.001410 | 0.001070 | 0.000886 | 0.000811 | 0.000824 | 0.000911 |
| 0.001069 | 0.001297 | 0.001571 | 0.001861 | 0.002138 | 0.002361 | 0.002531 | 0.002664 |
| 0.002773 | 0.002870 | 0.002944 | 0.002960 | 0.002884 | 0.002689 | 0.002390 | 0.002027 |
| 0.001639 | 0.001287 | 0.000987 | 0.000740 | 0.000551 | 0.000404 | 0.000290 | 0.000199 |
| 0.000124 | 0.000061 | 0.000015 | | | | | |
| 27 | 0.308110 | 0.3466707E+01 | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000001 | 0.000001 | 0.000001 | 0.000001 |
| 0.000002 | 0.000002 | 0.000003 | 0.000004 | 0.000005 | 0.000007 | 0.000010 | 0.000013 |
| 0.000019 | 0.000026 | 0.000036 | 0.000054 | 0.000089 | 0.000166 | 0.000361 | 0.000948 |
| 0.002771 | 0.008075 | 0.018504 | 0.027009 | 0.024979 | 0.018474 | 0.014413 | 0.013522 |
| 0.014459 | 0.015536 | 0.015280 | 0.013869 | 0.012753 | 0.013329 | 0.016948 | 0.024473 |
| 0.032924 | 0.032808 | 0.024007 | 0.016037 | 0.012494 | 0.011486 | 0.010748 | 0.008752 |
| 0.006013 | 0.004017 | 0.003032 | 0.002834 | 0.003140 | 0.003583 | 0.003540 | 0.002784 |
| 0.001832 | 0.001175 | 0.000847 | 0.000757 | 0.000843 | 0.001117 | 0.001605 | 0.002280 |
| 0.002910 | 0.003233 | 0.003192 | 0.003002 | 0.002907 | 0.003065 | 0.003552 | 0.004352 |
| 0.005220 | 0.005670 | 0.005275 | 0.004177 | 0.002926 | 0.001910 | 0.001213 | 0.000791 |
| 0.000529 | 0.000368 | 0.000265 | 0.000195 | 0.000147 | 0.000110 | 0.000081 | 0.000058 |
| 0.000037 | 0.000018 | 0.000004 | | | | | |
| 28 | 0.317870 | 0.4262667E+01 | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000001 | 0.000001 | 0.000001 | 0.000002 |
| 0.000003 | 0.000005 | 0.000008 | 0.000015 | 0.000029 | 0.000064 | 0.000160 | 0.000470 |
| 0.001562 | 0.005217 | 0.013625 | 0.021104 | 0.018177 | 0.011191 | 0.007025 | 0.005561 |
| 0.005741 | 0.007183 | 0.009717 | 0.012745 | 0.015358 | 0.017520 | 0.020635 | 0.026422 |
| 0.034127 | 0.037103 | 0.030264 | 0.020393 | 0.013878 | 0.010588 | 0.008828 | 0.007509 |
| 0.006282 | 0.005277 | 0.004676 | 0.004444 | 0.004317 | 0.003945 | 0.003223 | 0.002414 |
| 0.001803 | 0.001468 | 0.001375 | 0.001482 | 0.001773 | 0.002224 | 0.002772 | 0.003323 |
| 0.003845 | 0.004456 | 0.005448 | 0.007231 | 0.010090 | 0.013257 | 0.014258 | 0.011546 |
| 0.007244 | 0.003936 | 0.002079 | 0.001147 | 0.000686 | 0.000444 | 0.000309 | 0.000228 |
| 0.000176 | 0.000139 | 0.000112 | 0.000091 | 0.000074 | 0.000059 | 0.000045 | 0.000033 |
| 0.000022 | 0.000011 | 0.000003 | | | | | |

Appendix E: Notation

Text Appendix C

| | | |
|--------------------|----------|---|
| dd | | Two-digit code for day |
| | DEPTH | Water depth |
| df | | Frequency increment |
| dθ | | Direction increment |
| $D(f_n, \theta_m)$ | | Directional distribution function at frequency f_n and direction θ_m |
| | D(J) | J th direction of a set of ND discrete directions |
| | DD(N,J) | Directional distribution function at frequency F(N) and direction D(J) |
| | DS(J) | Integrated direction spectral density at direction D(J) |
| | F(N) | N th frequency of a set of NF discrete directions |
| FD | | Frequency-direction |
| | FDS(N,J) | Frequency-direction spectral density at frequency F(N) and direction D(J) |
| f_n | | n th frequency of a set of N discrete frequencies |
| f_p | | Peak frequency |
| $f_{p,FD}$ | | Frequency at peak of frequency-direction spectrum |
| $f_{p,IFS}$ | | Frequency at peak of integrated frequency spectrum |
| | FS(N) | Integrated frequency spectral density at frequency F(N) |
| | GPAT | Nine-digit code for pattern of operating gages |
| hh | | Two-digit code for hour |
| hhmm | | Four-digit code for time of day using hh for hour and mm for minute |
| H_{mo} | | Characteristic wave height |

Text Appendix C

| | | |
|--------------------|------|--|
| $I(f_n, \theta_j)$ | | Cumulative distribution function at frequency f_n and direction θ_m |
| | IHM | Four-digit code for time of day |
| | IYMD | Six-digit code for date |
| j | | Index associated with discrete direction |
| | J | Index associated with discrete direction |
| m | | Index associated with discrete direction |
| M | | Integer number of discrete directions |
| mm | | Two-digit code for month or minute as dictated by context |
| n | | Index associated with discrete frequency |
| | N | Index associated with discrete frequency |
| N | | Integer number of discrete frequencies |
| | ND | Integer number of discrete directions |
| | NF | Integer number of discrete frequencies |
| $S(f_n)$ | | Integrated frequency spectral density at frequency f_n |
| $S(\theta_m)$ | | Integrated direction spectral density at direction θ_m |
| $S(f_n, \theta_m)$ | | Frequency-direction spectral density at frequency f_n and direction θ_m |
| T_p | | Spectral peak period |
| $T_{p,fd}$ | | Spectral peak period from the frequency at which the frequency-direction spectrum is a maximum |
| $T_{p,ifs}$ | | Peak period from the integrated frequency spectrum |
| yy | | Two-digit code for year |
| yyymmdd | | Six-digit code for date using yy for year, mm for month, and dd for day |

Text Appendix C

| | |
|----------------------|--|
| $\Delta\theta$ | Directional spread parameter |
| $\Delta\theta_n$ | Directional spread parameter of a 180-deg directional distribution at frequency f_n |
| $\Delta\theta_{FDP}$ | Directional spread parameter of the directional distribution at the peak frequency of a frequency-direction spectrum |
| $\Delta\theta_{IDS}$ | Directional spread parameter of integrated direction spectrum |
| $\Delta\theta_{SW}$ | Spectrally weighted directional spread parameter |
| θ_j | j^{th} direction of a set of M discrete directions |
| θ_m | m^{th} direction of a set of M discrete directions |
| θ_p | Peak direction |
| $\theta_{p,n}$ | Direction of peak in directional distribution function at frequency f_n |
| $\theta_{p,FD}$ | Direction at peak of frequency-direction spectrum |
| $\theta_{p,IDS}$ | Direction at peak of integrated direction spectrum |
| $\theta_{p,SW}$ | Spectrally weighted peak direction |
| $\theta_{25\%,n}$ | Direction at which cumulative distribution function equals 0.25 at frequency f_n |
| $\theta_{50\%,n}$ | Direction at which cumulative distribution function equals 0.50 at frequency f_n |
| $\theta_{75\%,n}$ | Direction at which cumulative distribution function equals 0.75 at frequency f_n |

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characterize the observations is provided. These parameters include characteristic wave height, spectral peak frequency and corresponding peak period, peak wave direction, and directional spread. Time series graphs of these parameters, as well as local winds and currents, illustrate some of the salient climatology.

Observed spectra have been archived on magnetic tape and can be provided to a user on request. This report describes the structure, format, and naming scheme of the data files and lists a FORTRAN program that can be used to read them.

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